



April 11, 2022

Mr. Adam Vrabec  
On-Scene Coordinator  
U.S. Environmental Protection Agency, Region 5  
Superfund and Emergency Management Division  
77 West Jackson Boulevard  
Chicago, Illinois 60604

**Subject: Data Validation Report  
Marathon Pipeline Release Site - E22505  
EPA Contract No.: 68HE0519D0005  
Task Order/Task Order Line Item No.: 68HE0519F0071/0001DC102  
Document Tracking No. 1149**

Dear Mr. Vrabec:

Tetra Tech, Inc. (Tetra Tech) is submitting this data validation report for twelve surface water samples (including a field duplicate sample) and four trip blank samples collected at the Marathon Pipeline Release Site – E22505. The samples were collected on March 12, 13, and 14, 2022, and were analyzed for volatile organic compounds, semivolatile organic compounds, and total petroleum hydrocarbons (specifically, gasoline range organics, diesel range organics, and oil range organics) by Teklab, Inc. The final laboratory data package was received on March 16, 2022.

Analytical data were evaluated in general accordance with the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020).

No rejection of results was required for this data package. The results may be used as qualified based on the findings of this validation effort.

If you have any questions regarding this data validation report, please call me at (484) 459-1371.

Sincerely,

A handwritten signature in blue ink that reads 'Aaron Smith'.

Aaron Smith  
Environmental Chemist

Enclosure

cc: Chris Burns, Tetra Tech Program Manager  
Carlos Menor-Salazar, Tetra Tech Project Manager  
Caeli Cleary, Tetra Tech Project Document Control Coordinator  
TDD File

**ATTACHMENT**

**DATA VALIDATION REPORT  
TEKLAB INC. REPORT NOS. 22030863, 22030866,  
22030895, AND 22030941**

**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

<b>Site Name</b>	Marathon Pipeline Release E22505	<b>TO/TOLIN No.</b>	68HE0519F0071/0001DC102
<b>Document Tracking No.</b>	1149a	<b>Technical Reviewer (signature and date)</b>	<i>Harry N. Ellis III</i> 5 April 2022
<b>Data Reviewer (signature and date)</b>	<i>Caron Smith</i> 3/25/2022	<b>Laboratory</b>	Teklab, Inc. – Collinsville, IL
<b>Laboratory Report No.</b>	22030863	<b>Analyses</b>	Volatile organic compounds and gasoline range organics by SW-846 method 8260B and diesel range and oil range organics by SW-846 method 8270C
<b>Samples and Matrix</b>	Two surface water samples and one trip blank		
<b>Collection Date(s)</b>	March 12, 2022		
<b>Field Duplicate Pairs</b>	None		
<b>Field QC Blanks</b>	EOS-TB-01		

**INTRODUCTION**

This checklist summarizes the Stage 3 validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, Superfund Technical Assessment and Response Team (START V), EPA Region 5, Revision 3* (January 2022) and the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020).

**OVERALL EVALUATION**

No rejection of data was required for this data package. The results may be used as qualified based on the findings of this report.

**Data completeness:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Sample preservation, receipt, and holding times:**

Within Criteria	Exceedance/Notes
Y	

**Instrument Performance Checks:**

Within Criteria	Exceedance/Notes
Y	

**Initial Calibration:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Continuing Calibration:**

Within Criteria	Exceedance/Notes
N	<p>The continuing calibration verification (CCV) percent difference (%D) for TPH-ORO was outside of acceptable limits. The amount of TPH-ORO found in the CCV was less than the amount spiked. Therefore, the TPH-ORO results for all samples were qualified as estimated, potentially biased low (flagged UJ).</p> <p><b><u>VOCs, Inst. AE, 03/12/2022 at 11:46:</u></b> The CCV %D for bromomethane was outside of acceptable limits. The amount of bromomethane found in the CCV was less than the amount spiked. Therefore, the bromomethane results for EOS-SW02-031222 and EOS-TB-01 were qualified as estimated, potentially biased low (flagged UJ).</p> <p><b><u>VOCs, Inst. AK, 03/12/2022 at 11:40:</u></b> The CCV %Ds for acrolein and iodomethane were outside of acceptable limits. The amount of iodomethane found in the CCV was less than the amount spiked. Therefore, the iodomethane result for EOS-SW01-031222 was qualified as estimated, potentially biased low (flagged UJ). The amount of acrolein found in the CCV was greater than the amount spiked; however, acrolein was not detected in the associated sample. Therefore, no qualifications were necessary.</p> <p>In the laboratory data package, there were some instances where the CCV %D was only provided for response factors. However, some VOC analytes and TPH-DRO/ORO were calibrated according to a least squares regression; therefore, the %D calculation using response factors was not applicable. For these instances, the %D was recalculated using the spike amount versus the calculated amount. Resulting qualifications, if any, were provided in the previous paragraphs.</p>

**Calibration Verification:**

Within Criteria	Exceedance/Notes
N	<p>The initial calibration verification (ICV) %D for TPH-ORO was outside of acceptable limits. The amount of TPH-ORO found in the ICV was less than the amount spiked. Therefore, the TPH-ORO results for all samples were qualified as estimated, potentially biased low (flagged UJ).</p> <p>The initial calibration verification percent recovery for 4-methyl-2-pentanone and ethyl methacrylate were above acceptable limits. However, there were no positive detects in the associated samples. No qualifications were necessary.</p>



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Method blanks:**

Within Criteria	Exceedance/Notes
N	Iodomethane was found in the method blank at a concentration greater than the MDL, but less than the RL. However, iodomethane was not detected in the associated samples; therefore, qualification of data was not necessary.

**Field blanks:**

Within Criteria	Exceedance/Notes
Y	

**Interference Check Samples (ICS) (ICP metals only):**

Within Criteria	Exceedance/Notes
NA	

**Surrogates and labeled compounds:**

Within Criteria	Exceedance/Notes
Y	

**MS/MSDs:**

Within Criteria	Exceedance/Notes
NA	

**Post digestion spikes:**

Within Criteria	Exceedance/Notes
NA	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Serial dilutions:**

Within Criteria	Exceedance/Notes
NA	

**Laboratory duplicates:**

Within Criteria	Exceedance/Notes
NA	

**Field duplicates:**

Within Criteria	Exceedance/Notes
NA	

**LCSs/LCSDs:**

Within Criteria	Exceedance/Notes
Y	

**Sample dilutions:**

Within Criteria	Exceedance/Notes
NA	

**Re-extraction and reanalysis:**

Within Criteria	Exceedance/Notes
NA	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Second column confirmation (GC and HPLC analyses only):**

Within Criteria	Exceedance/Notes
NA	

**Internal Standards:**

Within Criteria	Exceedance/Notes
Y	

**Target analyte identification:**

Within Criteria	Exceedance/Notes
Y	

**Analyte quantitation and MDLs/RLs:**

Within Criteria	Exceedance/Notes
Y	No concentrations were reported between the method detection limit (MDL) and reporting limit (RL). Sample-specific MDLs and RLs are provided in the attached analytical data tables.

**Tentatively identified compounds:**

Within Criteria	Exceedance/Notes
NA	

**Other [specify]:**

Within Criteria	Exceedance/Notes
NA	



## DATA VALIDATION CHECKLIST – STAGE 3 EPA REGION 5 START CONTRACT

### Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.



MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030863

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL Units	Val Result	Val Qual
EOS-SW01-031222	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,1,1-Trichloroethane	ND		0.3	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.5 µg/L	0.5	U
EOS-SW01-031222	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30 µg/L	30.0	U
EOS-SW01-031222	SW8260B	1,1-Dichloroethane	ND		0.4	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,1-Dichloroethene	ND		0.4	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,1-Dichloropropene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,2,3-Trichloropropane	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,2-Dibromoethane	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,2-Dichlorobenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,2-Dichloroethane	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,2-Dichloroethene, Total	ND		0.2	4 µg/L	4.0	U
EOS-SW01-031222	SW8260B	1,2-Dichloropropane	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,3-Dichlorobenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,3-Dichloropropane	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1,3-Dichloropropene, Total	ND		0.2	4 µg/L	4.0	U
EOS-SW01-031222	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4	4 µg/L	4.0	U
EOS-SW01-031222	SW8260B	1,4-Dichlorobenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	1-Chlorobutane	ND		0.1	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	2,2-Dichloropropane	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	2-Butanone	ND		1.1	10 µg/L	10.0	U
EOS-SW01-031222	SW8260B	2-Chloroethyl vinyl ether	ND		0.4	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	2-Chlorotoluene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	2-Hexanone	ND		0.4	10 µg/L	10.0	U
EOS-SW01-031222	SW8260B	2-Nitropropane	ND		1.1	10 µg/L	10.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030863

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL Units	Val Result	Val Qual
EOS-SW01-031222	SW8260B	4-Chlorotoluene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	4-Methyl-2-pentanone	ND		0.4	10 µg/L	10.0	U
EOS-SW01-031222	SW8260B	Acetone	ND		2.4	10 µg/L	10.0	U
EOS-SW01-031222	SW8260B	Acetonitrile	ND		1.4	10 µg/L	10.0	U
EOS-SW01-031222	SW8260B	Acrolein	ND		4.4	20 µg/L	20.0	U
EOS-SW01-031222	SW8260B	Acrylonitrile	ND		0.2	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Allyl chloride	ND		0.2	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Benzene	ND		0.1	0.5 µg/L	0.5	U
EOS-SW01-031222	SW8260B	Bromobenzene	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Bromochloromethane	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Bromodichloromethane	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Bromoform	ND		0.8	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Bromomethane	ND		1	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Carbon disulfide	ND		0.7	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Carbon tetrachloride	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Chlorobenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Chloroethane	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Chloroform	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Chloromethane	ND		0.2	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Chloroprene	ND		0.1	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	cis-1,2-Dichloroethene	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	cis-1,3-Dichloropropene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Cyclohexanone	ND		16	20 µg/L	20.0	U
EOS-SW01-031222	SW8260B	Dibromochloromethane	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Dibromomethane	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Dichlorodifluoromethane	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Diisopropyl ether	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Ethyl acetate	ND		2.6	10 µg/L	10.0	U
EOS-SW01-031222	SW8260B	Ethyl ether	ND		0.2	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Ethyl methacrylate	ND		0.3	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Ethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Ethyl-tert-butyl ether	ND		0.1	2 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
TEKLAB REPORT NO. 22030863

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL Units	Val Result	Val Qual
EOS-SW01-031222	SW8260B	Hexachlorobutadiene	ND		0.3	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Hexachloroethane	ND		0.1	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Iodomethane	ND		2.6	5 µg/L	5.0	UJ
EOS-SW01-031222	SW8260B	Isopropylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	m,p-Xylenes	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Methacrylonitrile	ND		0.5	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Methyl Methacrylate	ND		0.2	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Methyl tert-butyl ether	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Methylacrylate	ND		0.2	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Methylene chloride	ND		0.9	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Naphthalene	ND		0.3	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	n-Butyl acetate	ND		0.3	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	n-Butylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	n-Heptane	ND		0.2	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	n-Hexane	ND		0.6	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Nitrobenzene	ND		10	50 µg/L	50.0	U
EOS-SW01-031222	SW8260B	n-Propylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	o-Xylene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Pentachloroethane	ND		0.4	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	p-Isopropyltoluene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Propionitrile	ND		0.9	10 µg/L	10.0	U
EOS-SW01-031222	SW8260B	sec-Butylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Styrene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	tert-Amyl methyl ether	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	tert-Butyl alcohol	ND		1.5	10 µg/L	10.0	U
EOS-SW01-031222	SW8260B	tert-Butylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Tetrachloroethene	ND		0.1	0.5 µg/L	0.5	U
EOS-SW01-031222	SW8260B	Tetrahydrofuran	ND		0.8	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Toluene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	TPH - GRO (C6 - C10)	ND		137	500 µg/L	500	U
EOS-SW01-031222	SW8260B	trans-1,2-Dichloroethene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	trans-1,3-Dichloropropene	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2	2 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030863

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL Units	Val Result	Val Qual
EOS-SW01-031222	SW8260B	Trichloroethene	ND		0.2	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Trichlorofluoromethane	ND		0.1	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Vinyl acetate	ND		0.3	5 µg/L	5.0	U
EOS-SW01-031222	SW8260B	Vinyl chloride	ND		0.1	2 µg/L	2.0	U
EOS-SW01-031222	SW8260B	Xylenes, Total	ND		0.3	4 µg/L	4.0	U
EOS-SW01-031222	SW8270C	TPH-DRO (C10 - C21)	ND		0.255	0.3 mg/L	0.300	U
EOS-SW01-031222	SW8270C	TPH-ORO (C21 - C35)	ND		0.255	0.3 mg/L	0.300	UJ
EOS-SW02-031222	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,1,1-Trichloroethane	ND		0.3	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.5 µg/L	0.5	U
EOS-SW02-031222	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30 µg/L	30.0	U
EOS-SW02-031222	SW8260B	1,1-Dichloroethane	ND		0.4	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,1-Dichloroethene	ND		0.4	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,1-Dichloropropene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,2,3-Trichloropropane	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,2-Dibromoethane	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,2-Dichlorobenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,2-Dichloroethane	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,2-Dichloroethene, Total	ND		0.2	4 µg/L	4.0	U
EOS-SW02-031222	SW8260B	1,2-Dichloropropane	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,3-Dichlorobenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,3-Dichloropropane	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	1,3-Dichloropropene, Total	ND		0.2	4 µg/L	4.0	U
EOS-SW02-031222	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4	4 µg/L	4.0	U
EOS-SW02-031222	SW8260B	1,4-Dichlorobenzene	ND		0.1	2 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030863

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL Units	Val Result	Val Qual
EOS-SW02-031222	SW8260B	1-Chlorobutane	ND		0.1	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	2,2-Dichloropropane	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	2-Butanone	ND		1.1	10 µg/L	10.0	U
EOS-SW02-031222	SW8260B	2-Chloroethyl vinyl ether	ND		0.4	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	2-Chlorotoluene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	2-Hexanone	ND		0.4	10 µg/L	10.0	U
EOS-SW02-031222	SW8260B	2-Nitropropane	ND		1.1	10 µg/L	10.0	U
EOS-SW02-031222	SW8260B	4-Chlorotoluene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	4-Methyl-2-pentanone	ND		0.4	10 µg/L	10.0	U
EOS-SW02-031222	SW8260B	Acetone	ND		2.4	10 µg/L	10.0	U
EOS-SW02-031222	SW8260B	Acetonitrile	ND		1.4	10 µg/L	10.0	U
EOS-SW02-031222	SW8260B	Acrolein	ND		4.4	20 µg/L	20.0	U
EOS-SW02-031222	SW8260B	Acrylonitrile	ND		0.2	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Allyl chloride	ND		0.2	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Benzene	ND		0.1	0.5 µg/L	0.5	U
EOS-SW02-031222	SW8260B	Bromobenzene	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Bromochloromethane	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Bromodichloromethane	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Bromoform	ND		0.8	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Bromomethane	ND		1	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Carbon disulfide	ND		0.7	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Carbon tetrachloride	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Chlorobenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Chloroethane	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Chloroform	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Chloromethane	ND		0.2	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Chloroprene	ND		0.1	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	cis-1,2-Dichloroethene	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	cis-1,3-Dichloropropene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Cyclohexanone	ND		16	20 µg/L	20.0	U
EOS-SW02-031222	SW8260B	Dibromochloromethane	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Dibromomethane	ND		0.2	2 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030863

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL Units	Val Result	Val Qual
EOS-SW02-031222	SW8260B	Dichlorodifluoromethane	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Diisopropyl ether	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Ethyl acetate	ND		2.6	10 µg/L	10.0	U
EOS-SW02-031222	SW8260B	Ethyl ether	ND		0.2	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Ethyl methacrylate	ND		0.3	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Ethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Ethyl-tert-butyl ether	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Hexachlorobutadiene	ND		0.3	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Hexachloroethane	ND		0.1	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Iodomethane	ND B		2.6	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Isopropylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	m,p-Xylenes	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Methacrylonitrile	ND		0.5	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Methyl Methacrylate	ND		0.2	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Methyl tert-butyl ether	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Methylacrylate	ND		0.2	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Methylene chloride	ND		0.9	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Naphthalene	ND		0.3	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	n-Butyl acetate	ND		0.3	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	n-Butylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	n-Heptane	ND		0.2	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	n-Hexane	ND		0.6	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Nitrobenzene	ND		10	50 µg/L	50.0	U
EOS-SW02-031222	SW8260B	n-Propylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	o-Xylene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Pentachloroethane	ND		0.4	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	p-Isopropyltoluene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Propionitrile	ND		0.9	10 µg/L	10.0	U
EOS-SW02-031222	SW8260B	sec-Butylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Styrene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	tert-Amyl methyl ether	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	tert-Butyl alcohol	ND		1.5	10 µg/L	10.0	U
EOS-SW02-031222	SW8260B	tert-Butylbenzene	ND		0.1	2 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030863

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL Units	Val Result	Val Qual
EOS-SW02-031222	SW8260B	Tetrachloroethene	ND		0.1	0.5 µg/L	0.5	U
EOS-SW02-031222	SW8260B	Tetrahydrofuran	ND		0.8	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Toluene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	TPH - GRO (C6 - C10)	ND		137	500 µg/L	500	U
EOS-SW02-031222	SW8260B	trans-1,2-Dichloroethene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	trans-1,3-Dichloropropene	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Trichloroethene	ND		0.2	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Trichlorofluoromethane	ND		0.1	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Vinyl acetate	ND		0.3	5 µg/L	5.0	U
EOS-SW02-031222	SW8260B	Vinyl chloride	ND		0.1	2 µg/L	2.0	U
EOS-SW02-031222	SW8260B	Xylenes, Total	ND		0.3	4 µg/L	4.0	U
EOS-SW02-031222	SW8270C	TPH-DRO (C10 - C21)	ND		0.255	0.3 mg/L	0.300	U
EOS-SW02-031222	SW8270C	TPH-ORO (C21 - C35)	ND		0.255	0.3 mg/L	0.300	UJ
EOS-TB-01	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,1,1-Trichloroethane	ND		0.3	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5 µg/L	5.0	U
EOS-TB-01	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.5 µg/L	0.5	U
EOS-TB-01	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30 µg/L	30.0	U
EOS-TB-01	SW8260B	1,1-Dichloroethane	ND		0.4	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,1-Dichloroethene	ND		0.4	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,1-Dichloropropene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,2,3-Trichloropropane	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,2-Dibromoethane	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,2-Dichlorobenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,2-Dichloroethane	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,2-Dichloroethene, Total	ND		0.2	4 µg/L	4.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030863

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL Units	Val Result	Val Qual
EOS-TB-01	SW8260B	1,2-Dichloropropane	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,3-Dichlorobenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,3-Dichloropropane	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1,3-Dichloropropene, Total	ND		0.2	4 µg/L	4.0	U
EOS-TB-01	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4	4 µg/L	4.0	U
EOS-TB-01	SW8260B	1,4-Dichlorobenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	1-Chlorobutane	ND		0.1	5 µg/L	5.0	U
EOS-TB-01	SW8260B	2,2-Dichloropropane	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	2-Butanone	ND		1.1	10 µg/L	10.0	U
EOS-TB-01	SW8260B	2-Chloroethyl vinyl ether	ND		0.4	5 µg/L	5.0	U
EOS-TB-01	SW8260B	2-Chlorotoluene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	2-Hexanone	ND		0.4	10 µg/L	10.0	U
EOS-TB-01	SW8260B	2-Nitropropane	ND		1.1	10 µg/L	10.0	U
EOS-TB-01	SW8260B	4-Chlorotoluene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	4-Methyl-2-pentanone	ND		0.4	10 µg/L	10.0	U
EOS-TB-01	SW8260B	Acetone	ND		2.4	10 µg/L	10.0	U
EOS-TB-01	SW8260B	Acetonitrile	ND		1.4	10 µg/L	10.0	U
EOS-TB-01	SW8260B	Acrolein	ND		4.4	20 µg/L	20.0	U
EOS-TB-01	SW8260B	Acrylonitrile	ND		0.2	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Allyl chloride	ND		0.2	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Benzene	ND		0.1	0.5 µg/L	0.5	U
EOS-TB-01	SW8260B	Bromobenzene	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Bromochloromethane	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Bromodichloromethane	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Bromoform	ND		0.8	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Bromomethane	ND		1	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Carbon disulfide	ND		0.7	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Carbon tetrachloride	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Chlorobenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Chloroethane	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Chloroform	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Chloromethane	ND		0.2	5 µg/L	5.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030863

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL Units	Val Result	Val Qual
EOS-TB-01	SW8260B	Chloroprene	ND		0.1	5 µg/L	5.0	U
EOS-TB-01	SW8260B	cis-1,2-Dichloroethene	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	cis-1,3-Dichloropropene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Cyclohexanone	ND		16	20 µg/L	20.0	U
EOS-TB-01	SW8260B	Dibromochloromethane	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Dibromomethane	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Dichlorodifluoromethane	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Diisopropyl ether	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Ethyl acetate	ND		2.6	10 µg/L	10.0	U
EOS-TB-01	SW8260B	Ethyl ether	ND		0.2	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Ethyl methacrylate	ND		0.3	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Ethylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Ethyl-tert-butyl ether	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Hexachlorobutadiene	ND		0.3	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Hexachloroethane	ND		0.1	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Iodomethane	ND B		2.6	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Isopropylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	m,p-Xylenes	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Methacrylonitrile	ND		0.5	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Methyl Methacrylate	ND		0.2	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Methyl tert-butyl ether	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Methylacrylate	ND		0.2	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Methylene chloride	ND		0.9	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Naphthalene	ND		0.3	5 µg/L	5.0	U
EOS-TB-01	SW8260B	n-Butyl acetate	ND		0.3	2 µg/L	2.0	U
EOS-TB-01	SW8260B	n-Butylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	n-Heptane	ND		0.2	5 µg/L	5.0	U
EOS-TB-01	SW8260B	n-Hexane	ND		0.6	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Nitrobenzene	ND		10	50 µg/L	50.0	U
EOS-TB-01	SW8260B	n-Propylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	o-Xylene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Pentachloroethane	ND		0.4	5 µg/L	5.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030863

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL Units	Val Result	Val Qual
EOS-TB-01	SW8260B	p-Isopropyltoluene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Propionitrile	ND		0.9	10 µg/L	10.0	U
EOS-TB-01	SW8260B	sec-Butylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Styrene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	tert-Amyl methyl ether	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	tert-Butyl alcohol	ND		1.5	10 µg/L	10.0	U
EOS-TB-01	SW8260B	tert-Butylbenzene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Tetrachloroethene	ND		0.1	0.5 µg/L	0.5	U
EOS-TB-01	SW8260B	Tetrahydrofuran	ND		0.8	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Toluene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	TPH - GRO (C6 - C10)	ND		137	500 µg/L	500	U
EOS-TB-01	SW8260B	trans-1,2-Dichloroethene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	trans-1,3-Dichloropropene	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Trichloroethene	ND		0.2	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Trichlorofluoromethane	ND		0.1	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Vinyl acetate	ND		0.3	5 µg/L	5.0	U
EOS-TB-01	SW8260B	Vinyl chloride	ND		0.1	2 µg/L	2.0	U
EOS-TB-01	SW8260B	Xylenes, Total	ND		0.3	4 µg/L	4.0	U

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

Data Package Number: 22030863

Method: 8260B

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
Initial Calibration	Confirm (in raw data) that an initial calibration begins each analytical sequence, before all QC or env. samples are analyzed, using the correct number of standards (and calibration blank, if required).	Ical 3/7/2022, Inst. GCMS\1	See Ical recalculation sheet below
	Confirm (in raw data) that an initial calibration occurs at the required frequency.	Ical 3/7/2022, Inst. GCMS\1	CCV was within associated Ical/ICV limits, and all samples within 12-hours of CCV.
	Confirm that initial calibration criteria are met. Spot-recalculate initial calibration results.	L4 Page 1134, ICAL-AK220307A-5.0 3/7/2022, GCMS\1, chloroethane	Reported RRF: 0.199 $(14277 * 50 \text{ ug/l}) / (717717 * 5.0 \text{ ug/l}) = 0.199$
		L4 Page 1076, VOCAK2204.M 3/7/2022, GCMS\1, chloroethane	Reported RRF: 0.226 $(0.285 + 0.256 + 0.229 + 0.212 + 0.199 + 0.221 + 0.213 + 0.208 + 0.218 + 0.223 + 0.221) / 11 = 0.226$
	L4 Page 1076, VOCAK2204.M 3/7/2022, GCMS\1, chloroethane	Reported %RSD = 10.72 $(0.0244 / 0.226) * 100 = 10.79$	
Recalculate at least one result (and %R or %D values, as appropriate) from each of the following QC samples and environmental samples, and compare your calculated results with <b>SHOW ALL WORK FOR RECALCULATIONS</b>			
Tune	Confirm DFTPP Percent Relative Abundance	L4 Pg. 216, Sample TUNE-AE220312.A-1, 3/12/2022 at 11:17	m/z 96 = 6.7% $(10994 / 164928) * 100 = 6.7\%$
ICV	Check result	L4 Pg. 1172, Sample ICV-AK220307A-1, 3/7/2022 at 17:07	Acetone Conc. = 128.69 ug/l $(((240546 / 876351) - 0.006744) / 0.1033) * 50 \text{ ug/l} = 129.6 \text{ ug/l}$
	Recalculate one RRF	NA	Linear Weighther Regression used - RFs not applicable
	Recalculate one %D	L4 Pg. 1169, Sample ICV-AK220307A-1, 3/7/2022 at 17:07	Acetone %R = 103% $(128.69 \text{ ug/l} / 125 \text{ ug/l}) * 100 = 103\%$
A CCV applicable to our samples	Check result	L4 Pg. 587, Sample CCV-AK220312A-1, 3/12/2022 at 11:40	Chloroethane Conc. = 45.70 ug/l $(176025 * 50 \text{ ug/l}) / (852385 * 0.226) = 45.69 \text{ ug/l}$
	Recalculate one RRF	L4 Pg. 583, Sample CCV-AK220312A-1, 3/12/2022 at 11:40	Chloroethane CCRF = 0.207 $(176025 * 50 \text{ ug/l}) / (852385 * 50 \text{ ug/l}) = 0.207$
	Recalculate one %D	L4 Pg. 583, Sample CCV-AK220312A-1, 3/12/2022 at 11:40	Chloroethane %D = 8.4% $(\text{abs}(0.226 - 0.207) / 0.226) * 100 = 8.4\%$

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

Data Package Number: 22030863

Method: 8260B

Method Blank	Check result	L4 Pg. 639, Sample : MBLK-AK220312A-1 3/12/2022 at 13:13	Acetone = 0.21 ug/l (((6465/901033)-0.006744)/0.1033)*50 ug/l = 0.21 ug/l (< RL = ND)
Surrogate	Recalculate one %R	L4 Pg. 723, Sample : 22030863-001B 3/12/2022 at 16:21	toluene-d8 %R = 102.38% (51.19 ug/l/50 ug/l)*100 = 102.38%
MS	Check result	NA	
	Recalculate one %R	NA	
MSD	Check result	NA	
	Recalculate one %R	NA	
	Recalculate one RPD value between MS and MSD	NA	
LCS	Check result	L4 Pg. 610, Sample : LCS-AK220312A-1 3/12/2022 at 12:03	Acetone Conc. = 122.19 ug/l (((238730/914824)-0.006744)/0.1033)*50 ug/l = 123.05 ug/l
	Recalculate one %R	Summary Report Pg. 22, SampID: LCS-AK220312A-1	Acetone %R = 97.8% (122.19 ug/l/125 ug/l)*100 = 97.8%
LCSD	Check result	L4 Pg. 633, Sample : LCSD-AK220312A-1 3/12/2022 at 12:26	Acetone Conc. = 128.76 ug/l (((253563/923251)-0.006744)/0.1033)*50 ug/l = 129.67 ug/l
	Recalculate one %R	Summary Report Pg. 25, SampID: LCSD-AK220312A-1	Acetone %R = 103% (128.76 ug/l/125 ug/l)*100 = 103%
	Recalculate one RPD value between LCS and LCSD	Summary Report Pg. 25, SampID: LCSD-AK220312A-1	Acetone %RPD = 5.24% abs(122.19 ug/l-128.76 ug/l)/((122.19 ug/l+128.76 ug/l)/2)*100 = 5.24%
Internal Standards	Recalculate one %R	NA - %Rs were not provided	IS recoveries were evaluated and were within acceptable limits.
	Recalculate one delta RT	NA - %Rs were not provided	IS RTs were evaluated and were within acceptable limits.
Sample Result for EOS-SW01-031222	Check result	L4 Pg. 723, Sample : 22030863-001B 3/12/2022 at 16:21	Acetone Conc. = 0.10 ug/l (((6103/876973)-0.006744)/0.1033)*50 ug/l = 0.104 ug/l (<RL = ND)
MDL for _____	Check result	NA - MDLs no change for aqueous undiluted samples	
RL for _____	Check result	NA - RLs no change for aqueous undiluted samples	
Convert µg/m <sup>3</sup> to ppbV (air only) for	Check result	NA	

Formulas:

\* Conc. (mg/kg) = {(Raw Conc. in ug/L) x (Vol. in L) x DF} / {(Sample mass in kg) x (fractional solids) x (1000)}

\*\* Serial dilution conc. (ug/L) = (Raw Conc. in ug/L) x (DF, typically 5)

\*\*\* %R = [(Measured Value) / (True Value)] x 100

\*\*\*\* %R = {(Spike sample result) - (Sample result)} / (Spike added) x 100

RPD = [(A-B) / {(A + B)/2}] x 100

Percent difference = [(Original Result - Diluted Result) / Original Result] x 100

**22030863**

Initial Calibration

GC-MS\1

Concentration (ug/L)

VOC

chloroethane

pg. 1076

	0.2	0.5	1.0	2.0	5.0	10.0	20.0	50.0	100.0	150.0	200.0
Rf	0.285	0.256	0.229	0.212	0.199	0.221	0.213	0.208	0.218	0.223	0.221

Std Dev

0.0244

Mean Rf

0.226



%RSD

10.78



Concentration 5 (ug/L) Rf Check

chloroethane area = 14277, 5.0 ug/L pg. 1134

Fluorobenzene (internal standard) area = 717717, 50.0 ug/L pg. 1134

$$\frac{14277}{717717} \times \frac{50.0 \text{ ug/L}}{5.0 \text{ ug/L}} = 0.199 \quad \checkmark$$

Concentration 50 (ug/L) Rf Check

chloroethane area = 158168, 5.0 ug/L pg. 1146

Fluorobenzene (internal standard) area = 759061, 50.0 ug/L pg. 1134

$$\frac{158168}{759061} \times \frac{50.0 \text{ ug/L}}{5.0 \text{ ug/L}} = 0.208 \quad \checkmark$$



**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030863**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
Initial Calibration	Confirm (in raw data) that an initial calibration begins each analytical sequence, before all QC or env. samples are analyzed, using the correct number of standards (and calibration blank, if required).	Ical 1/3/2022, Inst. T	See Ical linear regression recalculation
	Confirm (in raw data) that an initial calibration occurs at the required frequency.	Ical 1/3/2022, Inst. T	CCV was within associated Ical/ICV limits, and all samples within 12-hours of CCV.
	Confirm that initial calibration criteria are met. Spot-recalculate initial calibration results.	L4 Page 122-199, 1/3/2022, Inst T, TPH-DRO	See attached TPH-DRO linear regression recalculation
		L4 Page 122-199, 1/3/2022, Inst T, TPH-DRO	See attached TPH-DRO linear regression recalculation
		L4 Page 122-199, 1/3/2022, Inst T, TPH-DRO	See attached TPH-DRO linear regression recalculation
<p>Recalculate at least one result (and %R or %D values, as appropriate) from each of the following QC samples and environmental samples, and compare your calculated results with the results the laboratory reports on their summary forms found earlier in the data package. They should agree. If they do not, then there may be problems with the package and further review is required. Note that for some QC samples, your comparison may mean simply confirming that the result reported in the summary form matches the result in the raw data – there may not be any calculation.</p> <p align="right"><b>SHOW ALL WORK FOR RECALCULATIONS</b></p>			
Tune	Confirm DFTPP Percent Relative Abundance	L4 Pg. 8, Sample BNA210923C, 3/12/2022 at 11:05	m/z 199 = 7.0% (15175/217941)*100 = 6.97%

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030863**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
ICV	Check result	L4 Pg. 191, Sample BNA210819E, 3/12/2022 at 03:52	TPH-DRO Conc. = 1015.60 ug/ml (((107125607/1768489)-5.199)/2.181)*40 ug/ml = 1015.60 ug/ml
	Recalculate one RRF	NA	Linear Weigther Regression used - RFs not applicable
	Recalculate one %D	L4 Pg. 190, Sample BNA210819E, 3/12/2022 at 03:52	TPH-DRO %D = 1.6% (abs(1015.6 ug/ml - 1000 ug/ml)/1000 ug/ml)*100 = 1.56%
A CCV applicable to our samples	Check result	L4 Pg. 14, Sample : BNA220124M 3/12/2022 at 12:22	TPH-DRO Conc. = 1006.87 ug/ml (((72395279/1204613)-5.199)/2.181)*40 ug/ml = 1006.87 ug/ml
	Recalculate one RRF	L4 Pg. 13-14, Sample : BNA220124M 3/12/2022 at 12:22	CCRF = 2.404 (72395279*40 ug/ml)/(1204613*1000 ug/ml) = 2.404
	Recalculate one %D	L4 Pg. 13, Sample : BNA220124M 3/12/2022 at 12:22	%D = 2.6% (abs(2.404-2.469)/2.469)*100 = 2.63%
	%D using Spike vs. calculated amount	%D using spike vs. calculated was not provided	TPH-DRO %D = abs(1006.87 ug/ml - 1000 ug/ml)/1000 ug/ml * 100 = 0.69%
Method Blank	Check result	L4 Pg. 16, Sample : MBLK-188507 3/12/2022 at 13:01	TPH-DRO = 121.91 ug/ml (14995003*40 ug/ml)/1265838*2.469) =
Surrogate	Recalculate one %R	L4 Pg. 30, Sample : 22030863-001A 3/12/2022 at 17:41	p-terphenyl-d14 %R = 66.32% (16.58 ug/ml/25 ug/ml)*100 = 66.32%
MS	Check result	NA	
	Recalculate one %R	NA	
MSD	Check result	NA	
	Recalculate one %R	NA	
	Recalculate one RPD value between MS and MSD	NA	

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030863**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
LCS	Check result	L4 Pg. 22, Sample : LCSDRO-188507 3/12/2022 at 14:58	TPH-DRO Conc. = 825.15 ug/ml (((60303299/1201490)-5.199)/2.181)*40 ug/ml = 825.15 ug/ml
	Recalculate one %R	Summary Report Pg. 18, SampID: LCSDRO-188507	TPH-DRO (C10-C21) %R = 82.5% (0.825 mg/l/1.0 mg/l)*100 = 82.5%
LCSD	Check result	L4 Pg. 22, Sample : LCSDROD-188507 3/12/2022 at 15:37	TPH-DRO Conc. = 840.8 ug/ml (((61251225/1200194)-5.199)/2.181)*40 ug/ml = 840.6 ug/ml
	Recalculate one %R	Summary Report Pg. 18, SampID: LCSDROD-188507	TPH-DRO (C10-C21) %R = 84.1% (0.841 mg/l/1.0 mg/l)*100 = 84.1%
	Recalculate one RPD value between LCS and LCSD	Summary Report Pg. 18, SampID: LCSDROD-188507	TPH-DRO (C10-C21) %RPD = 1.88% (abs(0.825 mg/l-0.841 mg/l)/((0.825 mg/l+0.841 mg/l)/2))*100 = 1.92% (rounding)
Internal Standards	Recalculate one %R	NA - %Rs were not provided	IS recoveries were evaluated and were within acceptable limits.
	Recalculate one delta RT	NA - %Rs were not provided	IS RTs were evaluated and were within acceptable limits.
Sample Result for EOS-SW01-031222	Check result	L4 Pg. 30, Sample : 22030863-001A 3/12/2022 at 17:41	TPH-DRO Conc. = 135.76 ug/ml (((16614452/1318523)-5.199)/2.181)*40 ug/ml = 135.75 ug/ml (<RL = ND)
MDL for _____	Check result	NA - MDLs no change for aqueous undiluted samples	
RL for _____	Check result	NA - RLs no change for aqueous undiluted samples	
Convert µg/m <sup>3</sup> to ppbV (air only) for _____	Check result	NA	

Formulas:

\*  $\text{Conc. (mg/kg)} = \{(\text{Raw Conc. in ug/L}) \times (\text{Vol. in L}) \times \text{DF}\} / \{(\text{Sample mass in kg}) \times (\text{fractional solids}) \times (1000)\}$

\*\*  $\text{Serial dilution conc. (ug/L)} = (\text{Raw Conc. in ug/L}) \times (\text{DF, typically 5})$

\*\*\*  $\%R = [(\text{Measured Value}) / (\text{True Value})] \times 100$

\*\*\*\*  $\%R = \{(\text{Spike sample result}) - (\text{Sample result})\} / (\text{Spike added}) \times 100$

$\text{RPD} = [(A-B) / \{(A + B)/2\}] \times 100$

$\text{Percent difference} = [(\text{Original Result} - \text{Diluted Result}) / \text{Original Result}] \times 100$

Report No: 22030863

TPH-DRO by 8270C - Initial Calibration 1/3/2022

GC-MS Instrument T

TPH-DRO/ORO

Weighted Linear Regression (1/A)

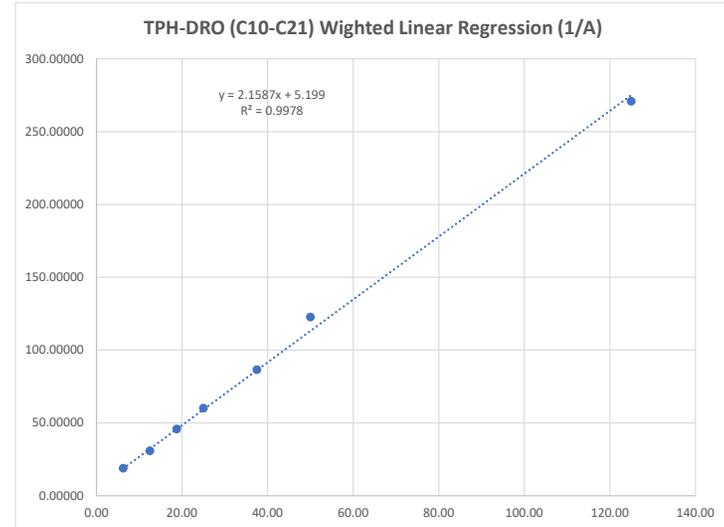
Page(s): 130-145

C(ug/mL) <sub>x</sub>	C(ug/mL) <sub>IS</sub>	Conc. Ratio (C <sub>x</sub> /C <sub>IS</sub> )	A <sub>x</sub>	A <sub>IS</sub>	Resp. Ratio (A <sub>x</sub> /A <sub>IS</sub> )
250	40	6.25	33121815	1752202	18.90297
500	40	12.50	53658608	1734782	30.93104
750	40	18.75	78340351	1708995	45.84001
1000	40	25.00	105572335	1753395	60.21024
1500	40	37.50	150847373	1740696	86.65923
2000	40	50.00	214742076	1750511	122.67394
5000	40	125.00	521756692	1925643	270.95193

Slope: 2.1600  
Intercept: 5.1990  
r: 0.99890  
r<sup>2</sup>: 0.99780

\*(X) = target analyte

\*(IS) = internal standard



Conc. = (((Target Area/IS Area)-intercept)/slope)\*IS Conc.

**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

<b>Site Name</b>	Marathon Pipeline Release E22505	<b>TO/TOLIN No.</b>	68HE0519F0071/0001DC102
<b>Document Tracking No.</b>	1149b	<b>Technical Reviewer (signature and date)</b>	<i>Harry N. Ellis III</i> 5 April 2022
<b>Data Reviewer (signature and date)</b>	<i>Caron Smith</i> 3/27/2022	<b>Laboratory</b>	Teklab, Inc. – Collinsville, IL
<b>Laboratory Report No.</b>	22030866	<b>Analyses</b>	Volatile organic compounds and gasoline range organics by SW-846 method 8260B and diesel range and oil range organics by SW-846 method 8270C
<b>Samples and Matrix</b>	Five surface water samples and one trip blank		
<b>Collection Date(s)</b>	March 12 and 13, 2022		
<b>Field Duplicate Pairs</b>	None		
<b>Field QC Blanks</b>	EOS-TB-02		

**INTRODUCTION**

This checklist summarizes the Stage 3 validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, Superfund Technical Assessment and Response Team (START V), EPA Region 5, Revision 3* (January 2022) and the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020).

**OVERALL EVALUATION**

No rejection of data was required for this data package. The results may be used as qualified based on the findings of this report.

**Data completeness:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Sample preservation, receipt, and holding times:**

Within Criteria	Exceedance/Notes
Y	

**Instrument Performance Checks:**

Within Criteria	Exceedance/Notes
Y	

**Initial Calibration:**

Within Criteria	Exceedance/Notes
Y	

**Continuing Calibration:**

Within Criteria	Exceedance/Notes
N	<p>The continuing calibration verification (CCV) percent difference (%D) for TPH-ORO was outside of acceptable limits. The amount of TPH-ORO found in the CCV was less than the amount spiked. Therefore, the TPH-ORO results for all samples were qualified as estimated, potentially biased low (flagged UJ).</p> <p>The CCV %D for iodomethane was outside of acceptable limits. The amount of iodomethane found in the CCV was less than the amount spiked. Therefore, the iodomethane results for all samples were qualified as estimated, potentially biased low (flagged UJ).</p> <p>In the laboratory data package, there were some instances where the CCV %D was only provided for response factors. However, some VOC analytes and TPH-DRO/ORO were calibrated according to a least squares regression; therefore, the %D calculation using response factors was not applicable. For these instances the %D was recalculated using the spike amount versus the calculated amount. Resulting qualifications, if any, were provided in the previous paragraphs.</p>



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Calibration Verification:**

Within Criteria	Exceedance/Notes
N	<p>The initial calibration verification (ICV) %D for TPH-ORO was outside of acceptable limits. The amount of TPH-ORO found in the ICV was less than the amount spiked. Therefore, the TPH-ORO results for all samples were qualified as estimated, potentially biased low (flagged UJ).</p> <p>The initial calibration verification percent recovery for 4-methyl-2-pentanone and ethyl methacrylate were above acceptable limits. However, there were no positive detects in the associated samples. No qualifications were necessary.</p>

**Method blanks:**

Within Criteria	Exceedance/Notes
Y	

**Field blanks:**

Within Criteria	Exceedance/Notes
Y	

**Interference Check Samples (ICS) (ICP metals only):**

Within Criteria	Exceedance/Notes
NA	

**Surrogates and labeled compounds:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**MS/MSDs:**

Within Criteria	Exceedance/Notes
Y	

**Post digestion spikes:**

Within Criteria	Exceedance/Notes
NA	

**Serial dilutions:**

Within Criteria	Exceedance/Notes
NA	

**Laboratory duplicates:**

Within Criteria	Exceedance/Notes
NA	

**Field duplicates:**

Within Criteria	Exceedance/Notes
NA	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**LCSs/LCSDs:**

Within Criteria	Exceedance/Notes
N	The laboratory control sample duplicate (LCSD) percent recovery (%R) for cyclohexanone was above acceptable limits. However, the average %R for cyclohexanone in the laboratory control sample (LCS)/LCSD pair was within acceptable limits. As a result, no qualifications were necessary.

**Sample dilutions:**

Within Criteria	Exceedance/Notes
NA	

**Re-extraction and reanalysis:**

Within Criteria	Exceedance/Notes
NA	

**Second column confirmation (GC and HPLC analyses only):**

Within Criteria	Exceedance/Notes
NA	

**Internal Standards:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Target analyte identification:**

Within Criteria	Exceedance/Notes
N	Benzene and toluene were reported in EOS-SW04-031222 at concentrations of 1.2 ug/l and 2.1 ug/l, respectively. However, the mass spectra fragmentation patterns did not support the presence of benzene or toluene. Therefore, benzene and toluene were reported as not detected (flagged U) in EOS-SW04-031222, and the result was changed to the value of the reporting limit (RL).

**Analyte quantitation and MDLs/RLs:**

Within Criteria	Exceedance/Notes
Y	No concentrations were reported between the method detection limit (MDL) and reporting limit (RL). Sample-specific MDLs and RLs are provided in the attached analytical data tables.

**Tentatively identified compounds:**

Within Criteria	Exceedance/Notes
NA	

**Other [specify]:**

Within Criteria	Exceedance/Notes
NA	



## DATA VALIDATION CHECKLIST – STAGE 3 EPA REGION 5 START CONTRACT

### Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.



MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW03-031222	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,1,1-Trichloroethane	ND		0.3	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.5	µg/L	0.5	U
EOS-SW03-031222	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30.0	µg/L	30.0	U
EOS-SW03-031222	SW8260B	1,1-Dichloroethane	ND		0.4	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,1-Dichloroethene	ND		0.4	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,1-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,2,3-Trichloropropane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,2-Dibromoethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,2-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,2-Dichloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,2-Dichloroethene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-SW03-031222	SW8260B	1,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,3-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,3-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1,3-Dichloropropene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-SW03-031222	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4	4.0	µg/L	4.0	U
EOS-SW03-031222	SW8260B	1,4-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	1-Chlorobutane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	2,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	2-Butanone	ND		1.1	10.0	µg/L	10.0	U
EOS-SW03-031222	SW8260B	2-Chloroethyl vinyl ether	ND		0.4	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	2-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	2-Hexanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW03-031222	SW8260B	2-Nitropropane	ND		1.1	10.0	µg/L	10.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW03-031222	SW8260B	4-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	4-Methyl-2-pentanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW03-031222	SW8260B	Acetone	ND		2.4	10.0	µg/L	10.0	U
EOS-SW03-031222	SW8260B	Acetonitrile	ND		1.4	10.0	µg/L	10.0	U
EOS-SW03-031222	SW8260B	Acrolein	ND		4.4	20.0	µg/L	20.0	U
EOS-SW03-031222	SW8260B	Acrylonitrile	ND		0.2	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Allyl chloride	ND		0.2	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Benzene	ND		0.1	0.5	µg/L	0.5	U
EOS-SW03-031222	SW8260B	Bromobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Bromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Bromodichloromethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Bromoform	ND		0.8	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Bromomethane	ND		1	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Carbon disulfide	ND		0.7	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Carbon tetrachloride	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Chlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Chloroethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Chloroform	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Chloromethane	ND		0.2	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Chloroprene	ND		0.1	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	cis-1,2-Dichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	cis-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Cyclohexanone	ND		16	20.0	µg/L	20.0	U
EOS-SW03-031222	SW8260B	Dibromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Dibromomethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Dichlorodifluoromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Diisopropyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Ethyl acetate	ND		2.6	10.0	µg/L	10.0	U
EOS-SW03-031222	SW8260B	Ethyl ether	ND		0.2	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Ethyl methacrylate	ND		0.3	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Ethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Ethyl-tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW03-031222	SW8260B	Hexachlorobutadiene	ND		0.3	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Hexachloroethane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Iodomethane	ND		2.6	5.0	µg/L	5.0	UJ
EOS-SW03-031222	SW8260B	Isopropylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	m,p-Xylenes	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Methacrylonitrile	ND		0.5	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Methyl Methacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Methyl tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Methylacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Methylene chloride	ND		0.9	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Naphthalene	ND		0.3	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	n-Butyl acetate	ND		0.3	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	n-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	n-Heptane	ND		0.2	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	n-Hexane	ND		0.6	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Nitrobenzene	ND		10	50.0	µg/L	50.0	U
EOS-SW03-031222	SW8260B	n-Propylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	o-Xylene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Pentachloroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	p-Isopropyltoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Propionitrile	ND		0.9	10.0	µg/L	10.0	U
EOS-SW03-031222	SW8260B	sec-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Styrene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	tert-Amyl methyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	tert-Butyl alcohol	ND		1.5	10.0	µg/L	10.0	U
EOS-SW03-031222	SW8260B	tert-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Tetrachloroethene	ND		0.1	0.5	µg/L	0.5	U
EOS-SW03-031222	SW8260B	Tetrahydrofuran	ND		0.8	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Toluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	TPH - GRO (C6 - C10)	ND		137	500	µg/L	500	U
EOS-SW03-031222	SW8260B	trans-1,2-Dichloroethene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	trans-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW03-031222	SW8260B	Trichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Trichlorofluoromethane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Vinyl acetate	ND		0.3	5.0	µg/L	5.0	U
EOS-SW03-031222	SW8260B	Vinyl chloride	ND		0.1	2.0	µg/L	2.0	U
EOS-SW03-031222	SW8260B	Xylenes, Total	ND		0.3	4.0	µg/L	4.0	U
EOS-SW03-031222	SW8270C	TPH-DRO (C10 - C21)	ND		0.255	0.300	mg/L	0.300	U
EOS-SW03-031222	SW8270C	TPH-ORO (C21 - C35)	ND		0.255	0.300	mg/L	0.300	UJ
EOS-SW04-031222	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,1,1-Trichloroethane	ND		0.3	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.5	µg/L	0.5	U
EOS-SW04-031222	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30.0	µg/L	30.0	U
EOS-SW04-031222	SW8260B	1,1-Dichloroethane	ND		0.4	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,1-Dichloroethene	ND		0.4	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,1-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,2,3-Trichloropropane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,2-Dibromoethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,2-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,2-Dichloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,2-Dichloroethene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-SW04-031222	SW8260B	1,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,3-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,3-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	1,3-Dichloropropene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-SW04-031222	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4	4.0	µg/L	4.0	U
EOS-SW04-031222	SW8260B	1,4-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW04-031222	SW8260B	1-Chlorobutane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	2,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	2-Butanone	ND		1.1	10.0	µg/L	10.0	U
EOS-SW04-031222	SW8260B	2-Chloroethyl vinyl ether	ND		0.4	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	2-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	2-Hexanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW04-031222	SW8260B	2-Nitropropane	ND		1.1	10.0	µg/L	10.0	U
EOS-SW04-031222	SW8260B	4-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	4-Methyl-2-pentanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW04-031222	SW8260B	Acetone	ND		2.4	10.0	µg/L	10.0	U
EOS-SW04-031222	SW8260B	Acetonitrile	ND		1.4	10.0	µg/L	10.0	U
EOS-SW04-031222	SW8260B	Acrolein	ND		4.4	20.0	µg/L	20.0	U
EOS-SW04-031222	SW8260B	Acrylonitrile	ND		0.2	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Allyl chloride	ND		0.2	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Benzene	1.2		0.1	0.5	µg/L	0.5	U
EOS-SW04-031222	SW8260B	Bromobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Bromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Bromodichloromethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Bromoform	ND		0.8	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Bromomethane	ND		1	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Carbon disulfide	ND		0.7	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Carbon tetrachloride	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Chlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Chloroethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Chloroform	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Chloromethane	ND		0.2	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Chloroprene	ND		0.1	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	cis-1,2-Dichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	cis-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Cyclohexanone	ND		16	20.0	µg/L	20.0	U
EOS-SW04-031222	SW8260B	Dibromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Dibromomethane	ND		0.2	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW04-031222	SW8260B	Dichlorodifluoromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Diisopropyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Ethyl acetate	ND		2.6	10.0	µg/L	10.0	U
EOS-SW04-031222	SW8260B	Ethyl ether	ND		0.2	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Ethyl methacrylate	ND		0.3	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Ethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Ethyl-tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Hexachlorobutadiene	ND		0.3	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Hexachloroethane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Iodomethane	ND		2.6	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Isopropylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	m,p-Xylenes	ND		0.2	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Methacrylonitrile	ND		0.5	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Methyl Methacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Methyl tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Methylacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Methylene chloride	ND		0.9	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Naphthalene	ND		0.3	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	n-Butyl acetate	ND		0.3	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	n-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	n-Heptane	ND		0.2	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	n-Hexane	ND		0.6	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	Nitrobenzene	ND		10	50.0	µg/L	50.0	U
EOS-SW04-031222	SW8260B	n-Propylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	o-Xylene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Pentachloroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-SW04-031222	SW8260B	p-Isopropyltoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Propionitrile	ND		0.9	10.0	µg/L	10.0	U
EOS-SW04-031222	SW8260B	sec-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	Styrene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	tert-Amyl methyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW04-031222	SW8260B	tert-Butyl alcohol	ND		1.5	10.0	µg/L	10.0	U
EOS-SW04-031222	SW8260B	tert-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW04-031222	SW8260B	Tetrachloroethene	ND			0.1	0.5 µg/L	0.5	U
EOS-SW04-031222	SW8260B	Tetrahydrofuran	ND			0.8	5.0 µg/L	5.0	U
EOS-SW04-031222	SW8260B	Toluene	2.1			0.1	2.0 µg/L	2.0	U
EOS-SW04-031222	SW8260B	TPH - GRO (C6 - C10)	ND			137	500 µg/L	500	U
EOS-SW04-031222	SW8260B	trans-1,2-Dichloroethene	ND			0.1	2.0 µg/L	2.0	U
EOS-SW04-031222	SW8260B	trans-1,3-Dichloropropene	ND			0.1	2.0 µg/L	2.0	U
EOS-SW04-031222	SW8260B	trans-1,4-Dichloro-2-butene	ND			0.2	2.0 µg/L	2.0	U
EOS-SW04-031222	SW8260B	Trichloroethene	ND			0.2	2.0 µg/L	2.0	U
EOS-SW04-031222	SW8260B	Trichlorofluoromethane	ND			0.1	5.0 µg/L	5.0	U
EOS-SW04-031222	SW8260B	Vinyl acetate	ND			0.3	5.0 µg/L	5.0	U
EOS-SW04-031222	SW8260B	Vinyl chloride	ND			0.1	2.0 µg/L	2.0	U
EOS-SW04-031222	SW8260B	Xylenes, Total	ND			0.3	4.0 µg/L	4.0	U
EOS-SW04-031222	SW8270C	TPH-DRO (C10 - C21)	ND			0.235	0.276 mg/L	0.276	U
EOS-SW04-031222	SW8270C	TPH-ORO (C21 - C35)	ND			0.235	0.276 mg/L	0.276	UJ
EOS-SW05-031322	SW8260B	1,1,1,2-Tetrachloroethane	ND			0.1	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,1,1-Trichloroethane	ND			0.3	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,1,2,2-Tetrachloroethane	ND			0.1	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND			0.4	5.0 µg/L	5.0	U
EOS-SW05-031322	SW8260B	1,1,2-Trichloroethane	ND			0.1	0.5 µg/L	0.5	U
EOS-SW05-031322	SW8260B	1,1-Dichloro-2-propanone	ND			2.7	30.0 µg/L	30.0	U
EOS-SW05-031322	SW8260B	1,1-Dichloroethane	ND			0.4	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,1-Dichloroethene	ND			0.4	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,1-Dichloropropene	ND			0.1	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,2,3-Trichlorobenzene	ND			0.2	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,2,3-Trichloropropane	ND			0.2	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,2,3-Trimethylbenzene	ND			0.1	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,2,4-Trichlorobenzene	ND			0.2	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,2,4-Trimethylbenzene	ND			0.1	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,2-Dibromo-3-chloropropane	ND			0.3	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,2-Dibromoethane	ND			0.1	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,2-Dichlorobenzene	ND			0.1	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,2-Dichloroethane	ND			0.1	2.0 µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,2-Dichloroethene, Total	ND			0.2	4.0 µg/L	4.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW05-031322	SW8260B	1,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,3-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,3-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	1,3-Dichloropropene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-SW05-031322	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4	4.0	µg/L	4.0	U
EOS-SW05-031322	SW8260B	1,4-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	1-Chlorobutane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	2,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	2-Butanone	ND		1.1	10.0	µg/L	10.0	U
EOS-SW05-031322	SW8260B	2-Chloroethyl vinyl ether	ND		0.4	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	2-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	2-Hexanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW05-031322	SW8260B	2-Nitropropane	ND		1.1	10.0	µg/L	10.0	U
EOS-SW05-031322	SW8260B	4-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	4-Methyl-2-pentanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW05-031322	SW8260B	Acetone	ND		2.4	10.0	µg/L	10.0	U
EOS-SW05-031322	SW8260B	Acetonitrile	ND		1.4	10.0	µg/L	10.0	U
EOS-SW05-031322	SW8260B	Acrolein	ND		4.4	20.0	µg/L	20.0	U
EOS-SW05-031322	SW8260B	Acrylonitrile	ND		0.2	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Allyl chloride	ND		0.2	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Benzene	ND		0.1	0.5	µg/L	0.5	U
EOS-SW05-031322	SW8260B	Bromobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Bromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Bromodichloromethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Bromoform	ND		0.8	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Bromomethane	ND		1	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Carbon disulfide	ND		0.7	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Carbon tetrachloride	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Chlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Chloroethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Chloroform	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Chloromethane	ND		0.2	5.0	µg/L	5.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW05-031322	SW8260B	Chloroprene	ND		0.1	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	cis-1,2-Dichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	cis-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Cyclohexanone	ND		16	20.0	µg/L	20.0	U
EOS-SW05-031322	SW8260B	Dibromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Dibromomethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Dichlorodifluoromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Diisopropyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Ethyl acetate	ND		2.6	10.0	µg/L	10.0	U
EOS-SW05-031322	SW8260B	Ethyl ether	ND		0.2	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Ethyl methacrylate	ND		0.3	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Ethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Ethyl-tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Hexachlorobutadiene	ND		0.3	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Hexachloroethane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Iodomethane	ND		2.6	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Isopropylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	m,p-Xylenes	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Methacrylonitrile	ND		0.5	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Methyl Methacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Methyl tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Methylacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Methylene chloride	ND		0.9	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Naphthalene	ND		0.3	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	n-Butyl acetate	ND		0.3	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	n-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	n-Heptane	ND		0.2	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	n-Hexane	ND		0.6	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Nitrobenzene	ND		10	50.0	µg/L	50.0	U
EOS-SW05-031322	SW8260B	n-Propylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	o-Xylene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Pentachloroethane	ND		0.4	5.0	µg/L	5.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW05-031322	SW8260B	p-Isopropyltoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Propionitrile	ND		0.9	10.0	µg/L	10.0	U
EOS-SW05-031322	SW8260B	sec-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Styrene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	tert-Amyl methyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	tert-Butyl alcohol	ND		1.5	10.0	µg/L	10.0	U
EOS-SW05-031322	SW8260B	tert-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Tetrachloroethene	ND		0.1	0.5	µg/L	0.5	U
EOS-SW05-031322	SW8260B	Tetrahydrofuran	ND		0.8	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Toluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	TPH - GRO (C6 - C10)	ND		137	500	µg/L	500	U
EOS-SW05-031322	SW8260B	trans-1,2-Dichloroethene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	trans-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Trichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Trichlorofluoromethane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Vinyl acetate	ND		0.3	5.0	µg/L	5.0	U
EOS-SW05-031322	SW8260B	Vinyl chloride	ND		0.1	2.0	µg/L	2.0	U
EOS-SW05-031322	SW8260B	Xylenes, Total	ND		0.3	4.0	µg/L	4.0	U
EOS-SW05-031322	SW8270C	TPH-DRO (C10 - C21)	ND		0.255	0.300	mg/L	0.300	U
EOS-SW05-031322	SW8270C	TPH-ORO (C21 - C35)	ND		0.255	0.300	mg/L	0.300	U
EOS-SW06-031322	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,1,1-Trichloroethane	ND		0.3	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-SW06-031322	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.5	µg/L	0.5	U
EOS-SW06-031322	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30.0	µg/L	30.0	U
EOS-SW06-031322	SW8260B	1,1-Dichloroethane	ND		0.4	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,1-Dichloroethene	ND		0.4	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,1-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,2,3-Trichloropropane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW06-031322	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,2-Dibromoethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,2-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,2-Dichloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,2-Dichloroethene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-SW06-031322	SW8260B	1,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,3-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,3-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1,3-Dichloropropene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-SW06-031322	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4	4.0	µg/L	4.0	U
EOS-SW06-031322	SW8260B	1,4-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	1-Chlorobutane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW06-031322	SW8260B	2,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	2-Butanone	ND		1.1	10.0	µg/L	10.0	U
EOS-SW06-031322	SW8260B	2-Chloroethyl vinyl ether	ND		0.4	5.0	µg/L	5.0	U
EOS-SW06-031322	SW8260B	2-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	2-Hexanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW06-031322	SW8260B	2-Nitropropane	ND		1.1	10.0	µg/L	10.0	U
EOS-SW06-031322	SW8260B	4-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	4-Methyl-2-pentanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW06-031322	SW8260B	Acetone	ND		2.4	10.0	µg/L	10.0	U
EOS-SW06-031322	SW8260B	Acetonitrile	ND		1.4	10.0	µg/L	10.0	U
EOS-SW06-031322	SW8260B	Acrolein	ND		4.4	20.0	µg/L	20.0	U
EOS-SW06-031322	SW8260B	Acrylonitrile	ND		0.2	5.0	µg/L	5.0	U
EOS-SW06-031322	SW8260B	Allyl chloride	ND		0.2	5.0	µg/L	5.0	U
EOS-SW06-031322	SW8260B	Benzene	ND		0.1	0.5	µg/L	0.5	U
EOS-SW06-031322	SW8260B	Bromobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	Bromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	Bromodichloromethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	Bromoform	ND		0.8	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW06-031322	SW8260B	Bromomethane	ND			1	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	Carbon disulfide	ND			0.7	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Carbon tetrachloride	ND			0.1	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Chlorobenzene	ND			0.1	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Chloroethane	ND			0.2	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Chloroform	ND			0.2	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Chloromethane	ND			0.2	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	Chloroprene	ND			0.1	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	cis-1,2-Dichloroethene	ND			0.2	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	cis-1,3-Dichloropropene	ND			0.1	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	cis-1,4-Dichloro-2-butene	ND			0.2	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Cyclohexanone	ND			16	20.0 µg/L	20.0	U
EOS-SW06-031322	SW8260B	Dibromochloromethane	ND			0.2	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Dibromomethane	ND			0.2	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Dichlorodifluoromethane	ND			0.2	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Diisopropyl ether	ND			0.1	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Ethyl acetate	ND			2.6	10.0 µg/L	10.0	U
EOS-SW06-031322	SW8260B	Ethyl ether	ND			0.2	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	Ethyl methacrylate	ND			0.3	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	Ethylbenzene	ND			0.1	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Ethyl-tert-butyl ether	ND			0.1	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Hexachlorobutadiene	ND			0.3	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	Hexachloroethane	ND			0.1	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	Iodomethane	ND			2.6	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	Isopropylbenzene	ND			0.1	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	m,p-Xylenes	ND			0.2	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Methacrylonitrile	ND			0.5	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	Methyl Methacrylate	ND			0.2	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	Methyl tert-butyl ether	ND			0.1	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Methylacrylate	ND			0.2	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	Methylene chloride	ND			0.9	2.0 µg/L	2.0	U
EOS-SW06-031322	SW8260B	Naphthalene	ND			0.3	5.0 µg/L	5.0	U
EOS-SW06-031322	SW8260B	n-Butyl acetate	ND			0.3	2.0 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW06-031322	SW8260B	n-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	n-Heptane	ND		0.2	5.0	µg/L	5.0	U
EOS-SW06-031322	SW8260B	n-Hexane	ND		0.6	5.0	µg/L	5.0	U
EOS-SW06-031322	SW8260B	Nitrobenzene	ND		10	50.0	µg/L	50.0	U
EOS-SW06-031322	SW8260B	n-Propylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	o-Xylene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	Pentachloroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-SW06-031322	SW8260B	p-Isopropyltoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	Propionitrile	ND		0.9	10.0	µg/L	10.0	U
EOS-SW06-031322	SW8260B	sec-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	Styrene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	tert-Amyl methyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	tert-Butyl alcohol	ND		1.5	10.0	µg/L	10.0	U
EOS-SW06-031322	SW8260B	tert-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	Tetrachloroethene	ND		0.1	0.5	µg/L	0.5	U
EOS-SW06-031322	SW8260B	Tetrahydrofuran	ND		0.8	5.0	µg/L	5.0	U
EOS-SW06-031322	SW8260B	Toluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	TPH - GRO (C6 - C10)	ND		137	500	µg/L	500	U
EOS-SW06-031322	SW8260B	trans-1,2-Dichloroethene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	trans-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	Trichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	Trichlorofluoromethane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW06-031322	SW8260B	Vinyl acetate	ND		0.3	5.0	µg/L	5.0	U
EOS-SW06-031322	SW8260B	Vinyl chloride	ND		0.1	2.0	µg/L	2.0	U
EOS-SW06-031322	SW8260B	Xylenes, Total	ND		0.3	4.0	µg/L	4.0	U
EOS-SW06-031322	SW8270C	TPH-DRO (C10 - C21)	ND		0.255	0.300	mg/L	0.300	U
EOS-SW06-031322	SW8270C	TPH-ORO (C21 - C35)	ND		0.255	0.300	mg/L	0.300	UJ
EOS-SW07-031322	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,1,1-Trichloroethane	ND		0.3	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.5	µg/L	0.5	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031322	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30.0	µg/L	30.0	U
EOS-SW07-031322	SW8260B	1,1-Dichloroethane	ND		0.4	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,1-Dichloroethene	ND		0.4	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,1-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,2,3-Trichloropropane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,2-Dibromoethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,2-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,2-Dichloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,2-Dichloroethene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-SW07-031322	SW8260B	1,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,3-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,3-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1,3-Dichloropropene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-SW07-031322	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4	4.0	µg/L	4.0	U
EOS-SW07-031322	SW8260B	1,4-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	1-Chlorobutane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	2,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	2-Butanone	ND		1.1	10.0	µg/L	10.0	U
EOS-SW07-031322	SW8260B	2-Chloroethyl vinyl ether	ND		0.4	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	2-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	2-Hexanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW07-031322	SW8260B	2-Nitropropane	ND		1.1	10.0	µg/L	10.0	U
EOS-SW07-031322	SW8260B	4-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	4-Methyl-2-pentanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW07-031322	SW8260B	Acetone	ND		2.4	10.0	µg/L	10.0	U
EOS-SW07-031322	SW8260B	Acetonitrile	ND		1.4	10.0	µg/L	10.0	U
EOS-SW07-031322	SW8260B	Acrolein	ND		4.4	20.0	µg/L	20.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031322	SW8260B	Acrylonitrile	ND		0.2	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Allyl chloride	ND		0.2	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Benzene	ND		0.1	0.5	µg/L	0.5	U
EOS-SW07-031322	SW8260B	Bromobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Bromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Bromodichloromethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Bromoform	ND		0.8	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Bromomethane	ND		1	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Carbon disulfide	ND		0.7	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Carbon tetrachloride	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Chlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Chloroethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Chloroform	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Chloromethane	ND		0.2	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Chloroprene	ND		0.1	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	cis-1,2-Dichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	cis-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Cyclohexanone	ND		16	20.0	µg/L	20.0	U
EOS-SW07-031322	SW8260B	Dibromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Dibromomethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Dichlorodifluoromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Diisopropyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Ethyl acetate	ND		2.6	10.0	µg/L	10.0	U
EOS-SW07-031322	SW8260B	Ethyl ether	ND		0.2	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Ethyl methacrylate	ND		0.3	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Ethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Ethyl-tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Hexachlorobutadiene	ND		0.3	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Hexachloroethane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Iodomethane	ND		2.6	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Isopropylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	m,p-Xylenes	ND		0.2	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031322	SW8260B	Methacrylonitrile	ND		0.5	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Methyl Methacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Methyl tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Methylacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Methylene chloride	ND		0.9	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Naphthalene	ND		0.3	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	n-Butyl acetate	ND		0.3	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	n-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	n-Heptane	ND		0.2	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	n-Hexane	ND		0.6	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Nitrobenzene	ND		10	50.0	µg/L	50.0	U
EOS-SW07-031322	SW8260B	n-Propylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	o-Xylene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Pentachloroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	p-Isopropyltoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Propionitrile	ND		0.9	10.0	µg/L	10.0	U
EOS-SW07-031322	SW8260B	sec-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Styrene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	tert-Amyl methyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	tert-Butyl alcohol	ND		1.5	10.0	µg/L	10.0	U
EOS-SW07-031322	SW8260B	tert-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Tetrachloroethene	ND		0.1	0.5	µg/L	0.5	U
EOS-SW07-031322	SW8260B	Tetrahydrofuran	ND		0.8	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Toluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	TPH - GRO (C6 - C10)	ND		137	500	µg/L	500	U
EOS-SW07-031322	SW8260B	trans-1,2-Dichloroethene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	trans-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Trichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Trichlorofluoromethane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Vinyl acetate	ND		0.3	5.0	µg/L	5.0	U
EOS-SW07-031322	SW8260B	Vinyl chloride	ND		0.1	2.0	µg/L	2.0	U
EOS-SW07-031322	SW8260B	Xylenes, Total	ND		0.3	4.0	µg/L	4.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031322	SW8270C	TPH-DRO (C10 - C21)	ND		0.255	0.300	mg/L	0.300	U
EOS-SW07-031322	SW8270C	TPH-ORO (C21 - C35)	ND		0.255	0.300	mg/L	0.300	UJ
EOS-TB-02	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,1,1-Trichloroethane	ND		0.3	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.5	µg/L	0.5	U
EOS-TB-02	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30.0	µg/L	30.0	U
EOS-TB-02	SW8260B	1,1-Dichloroethane	ND		0.4	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,1-Dichloroethene	ND		0.4	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,1-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,2,3-Trichloropropane	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,2-Dibromoethane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,2-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,2-Dichloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,2-Dichloroethene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-TB-02	SW8260B	1,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,3-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,3-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1,3-Dichloropropene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-TB-02	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4	4.0	µg/L	4.0	U
EOS-TB-02	SW8260B	1,4-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	1-Chlorobutane	ND		0.1	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	2,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	2-Butanone	ND		1.1	10.0	µg/L	10.0	U
EOS-TB-02	SW8260B	2-Chloroethyl vinyl ether	ND		0.4	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	2-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-TB-02	SW8260B	2-Hexanone	ND		0.4	10.0	µg/L	10.0	U
EOS-TB-02	SW8260B	2-Nitropropane	ND		1.1	10.0	µg/L	10.0	U
EOS-TB-02	SW8260B	4-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	4-Methyl-2-pentanone	ND		0.4	10.0	µg/L	10.0	U
EOS-TB-02	SW8260B	Acetone	ND		2.4	10.0	µg/L	10.0	U
EOS-TB-02	SW8260B	Acetonitrile	ND		1.4	10.0	µg/L	10.0	U
EOS-TB-02	SW8260B	Acrolein	ND		4.4	20.0	µg/L	20.0	U
EOS-TB-02	SW8260B	Acrylonitrile	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Allyl chloride	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Benzene	ND		0.1	0.5	µg/L	0.5	U
EOS-TB-02	SW8260B	Bromobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Bromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Bromodichloromethane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Bromoform	ND		0.8	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Bromomethane	ND		1	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Carbon disulfide	ND		0.7	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Carbon tetrachloride	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Chlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Chloroethane	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Chloroform	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Chloromethane	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Chloroprene	ND		0.1	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	cis-1,2-Dichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	cis-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Cyclohexanone	ND		16	20.0	µg/L	20.0	U
EOS-TB-02	SW8260B	Dibromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Dibromomethane	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Dichlorodifluoromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Diisopropyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Ethyl acetate	ND		2.6	10.0	µg/L	10.0	U
EOS-TB-02	SW8260B	Ethyl ether	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Ethyl methacrylate	ND		0.3	5.0	µg/L	5.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-TB-02	SW8260B	Ethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Ethyl-tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Hexachlorobutadiene	ND		0.3	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Hexachloroethane	ND		0.1	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Iodomethane	ND		2.6	5.0	µg/L	5.0	UJ
EOS-TB-02	SW8260B	Isopropylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	m,p-Xylenes	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Methacrylonitrile	ND		0.5	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Methyl Methacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Methyl tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Methylacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Methylene chloride	ND		0.9	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Naphthalene	ND		0.3	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	n-Butyl acetate	ND		0.3	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	n-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	n-Heptane	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	n-Hexane	ND		0.6	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Nitrobenzene	ND		10	50.0	µg/L	50.0	U
EOS-TB-02	SW8260B	n-Propylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	o-Xylene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Pentachloroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	p-Isopropyltoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Propionitrile	ND		0.9	10.0	µg/L	10.0	U
EOS-TB-02	SW8260B	sec-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Styrene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	tert-Amyl methyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	tert-Butyl alcohol	ND		1.5	10.0	µg/L	10.0	U
EOS-TB-02	SW8260B	tert-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Tetrachloroethene	ND		0.1	0.5	µg/L	0.5	U
EOS-TB-02	SW8260B	Tetrahydrofuran	ND		0.8	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Toluene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	TPH - GRO (C6 - C10)	ND		137	500	µg/L	500	U
EOS-TB-02	SW8260B	trans-1,2-Dichloroethene	ND		0.1	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030866

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-TB-02	SW8260B	trans-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Trichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Trichlorofluoromethane	ND		0.1	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Vinyl acetate	ND		0.3	5.0	µg/L	5.0	U
EOS-TB-02	SW8260B	Vinyl chloride	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-02	SW8260B	Xylenes, Total	ND		0.3	4.0	µg/L	4.0	U

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

Data Package Number: 22030866

Method: 8260B

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
Initial Calibration	Confirm (in raw data) that an initial calibration begins each analytical sequence, before all QC or env. samples are analyzed, using the correct number of standards (and calibration blank, if required).	Ical 3/7/2022, Inst. GCMS\1	See Ical recalculation sheet below
	Confirm (in raw data) that an initial calibration occurs at the required frequency.	Ical 3/7/2022, Inst. GCMS\1	CCV was within associated Ical/ICV limits, and all samples within 12-hours of CCV.
	Confirm that initial calibration criteria are met. Spot-recalculate initial calibration results.	L4 Page 956, ICAL-AK220307A-5.0 3/7/2022, GCMS\1, chloroethane	Reported RRF: 0.199 $(14277*50 \text{ ug/l})/(717717*5.0 \text{ ug/l}) = 0.199$
		L4 Page 898, VOCAK2204.M 3/7/2022, GCMS\1, chloroethane	Reported RRF: 0.226 $(0.285+0.256+0.229+0.212+0.199+0.221+0.213+0.208+0.218+0.223+0.221)/11 = 0.226$
	L4 Page 898, VOCAK2204.M 3/7/2022, GCMS\1, chloroethane	Reported %RSD = 10.72 $(0.0244/0.226)*100 = 10.79$	
Recalculate at least one result (and %R or %D values, as appropriate) from each of the following QC samples and environmental samples, and compare your calculated results with the <b>SHOW ALL WORK FOR RECALCULATIONS</b>			
Tune	Confirm DFTPP Percent Relative Abundance	L4 Pg. 673, Sample TUNE-Ak220313A-1, 3/13/2022 at 11:30	m/z 96 = 6.7% $(4671/70067)*100 = 6.7\%$
ICV	Check result	L4 Pg. 994, Sample ICV-AK220307A-1, 3/7/2022 at 17:07	Acetone Conc. = 128.69 ug/l $((240546/876351)-0.006744)/0.1033*50 \text{ ug/l} = 129.6 \text{ ug/l}$
	Recalculate one RRF	NA	Linear Weigther Regression used - Rf's not applicable
	Recalculate one %R	L4 Pg. 991, Sample ICV-AK220307A-1, 3/7/2022 at 17:07	Acetone %R = 103% $(128.69 \text{ ug/l}/125 \text{ ug/l})*100 = 103\%$
A CCV applicable to our samples	Check result	L4 Pg. 678, Sample CCV-AK220313A-1, 3/13/2022 at 11:54	Chloroethane Conc. = 43.76 ug/l $(165429*50 \text{ ug/l})/(836540*0.226) = 43.75 \text{ ug/l}$
	Recalculate one RRF	L4 Pg. 674, Sample CCV-AK220313A-1, 3/13/2022 at 11:54	Chloroethane CCRF = 0.198 $(165429*50 \text{ ug/l})/(836540*50 \text{ ug/l}) = 0.198$
	Recalculate one %D	L4 Pg. 674, Sample CCV-AK220313A-1, 3/13/2022 at 11:54	Chloroethane %D = 12.4% $(\text{abs}(0.226-0.198)/0.226)*100 = 12.4\%$
Method Blank	Check result	L4 Pg. 698, Sample : MBLK-AK220313A-1 3/13/2022 at 13:28	Acetone = 0.12 ug/l $((6279/898124)-0.006744)/0.1033*50 \text{ ug/l} = 0.12 \text{ ug/l} (< \text{RL} = \text{ND})$
Surrogate	Recalculate one %R	L4 Pg. 737, Sample : 22030866-001B 3/13/2022 at 15:26	toluene-d8 %R = 100.12% $(50.06 \text{ ug/l}/50 \text{ ug/l})*100 = 100.12\%$

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

Data Package Number: 22030866

Method: 8260B

MS	Check result	L4 Pg. 848, Sample : 22030866-005BMS 3/13/2022 at 17:47	Chlorobenzene = 48.62 ug/l (932045*50 ug/l)/(802695*1.194) = 48.62 ug/l
	Recalculate one %R	Summary Report Pg. 37, SampID: 22030866-005BMS	Chlorobenzene %R = 97.2% (48.62 ug/l/50 ug/l)*100 = 97.2%
MSD	Check result	L4 Pg. 871, Sample : 22030866-005BMSD 3/13/2022 at 18:10	Chlorobenzene = 50.19 ug/l (923930*50 ug/l)/(770841*1.194) = 50.19 ug/l
	Recalculate one %R	Summary Report Pg. 38, SampID: 22030866-005BMSD	Chlorobenzene %R = 100.4% (50.19 ug/l/50 ug/l)*100 = 100.4%
	Recalculate one RPD value between MS and MSD	Summary Report Pg. 38, SampID: 22030866-005BMSD	Chlorobenzene %RPD = 3.18% abs(48.62 ug/l-50.19 ug/l)/((48.62 ug/l+50.19 ug/l)/2)*100 = 3.18%
LCS	Check result	L4 Pg. 685, Sample : LCS-AK220313A-1 3/12/2022 at 12:17	Acetone Conc. = 131.45 ug/l (((253309/903924)-0.006744)/0.1033)*50 ug/l = 132.38 ug/l
	Recalculate one %R	Summary Report Pg. 31, SampID: LCS-AK220313A-1	Acetone %R = 105.2% (131.45 ug/l/125 ug/l)*100 = 105.2%
LCSD	Check result	L4 Pg. 692, Sample : LCSD-AK220313A-1 3/12/2022 at 12:41	Acetone Conc. = 131.45 ug/l (((258391/922085)-0.006744)/0.1033)*50 ug/l = 132.37 ug/l
	Recalculate one %R	Summary Report Pg. 34, SampID: LCSD-AK220313A-1	Acetone %R = 105.2% (131.45 ug/l/125 ug/l)*100 = 105.2%
	Recalculate one RPD value between LCS and LCSD	Summary Report Pg. 34, SampID: LCSD-AK220313A-1	Acetone %RPD = 0.00 % abs(131.45 ug/l-131.45 ug/l)/((131.45 ug/l+131.45 ug/l)/2)*100 = 0.00%
Internal Standards	Recalculate one %R	NA - %Rs were not provided	IS recoveries were evaluated and were within acceptable limits.
	Recalculate one delta RT	NA - %Rs were not provided	IS RTs were evaluated and were within acceptable limits.
Sample Result for EOS-SW03-031222	Check result	L4 Pg. 737, Sample : 22030866-001B 3/13/2022 at 15:26	Acetone Conc. = 0.31 ug/l (((6852/926013)-0.006744)/0.1033)*50 ug/l = 0.31 ug/l (<RL = ND)
MDL for _____	Check result	NA - MDLs no change for aqueous undiluted samples	
RL for _____	Check result	NA - RLs no change for aqueous undiluted samples	
Convert µg/m <sup>3</sup> to ppbV (air only) for _____	Check result	NA	

Formulas:

\* Conc. (mg/kg) = {(Raw Conc. in ug/L) x (Vol. in L) x DF} / {(Sample mass in kg) x (fractional solids) x (1000)}

\*\* Serial dilution conc. (ug/L) = (Raw Conc. in ug/L) x (DF, typically 5)

\*\*\* %R = [(Measured Value) / (True Value)] x 100

\*\*\*\* %R = {(Spike sample result) - (Sample result)} / (Spike added) x 100

RPD = [(A-B) / {(A + B)/2}] x 100

Percent difference = [(Original Result - Diluted Result) / Original Result] x 100

**22030866**

Initial Calibration

VOC 3/7/2022

GC-MS\1 (Inst. AK)

chloroethane pg. 898

Concentration (ug/L)

	0.2	0.5	1.0	2.0	5.0	10.0	20.0	50.0	100.0	150.0	200.0
Rf	0.285	0.256	0.229	0.212	0.199	0.221	0.213	0.208	0.218	0.223	0.221

Std Dev

0.0244

Mean Rf

0.226



%RSD

10.78



Concentration 5 (ug/L) Rf Check

chloroethane area = 14277, 5.0 ug/L pg. 956

Fluorobenzene (internal standard) area = 717717, 50.0 ug/L pg. 956

$$\frac{14277}{717717} \times \frac{50.0 \text{ ug/L}}{5.0 \text{ ug/L}} = 0.199 \quad \checkmark$$

Concentration 50 (ug/L) Rf Check

chloroethane area = 158168, 5.0 ug/L pg. 968

Fluorobenzene (internal standard) area = 759061, 50.0 ug/L pg. 968

$$\frac{158168}{759061} \times \frac{50.0 \text{ ug/L}}{5.0 \text{ ug/L}} = 0.208 \quad \checkmark$$

Report No: 22030866

VOC by 8260B - Initial Calibration

3/7/2022

Instrument GCMS\1 (Inst. AK)

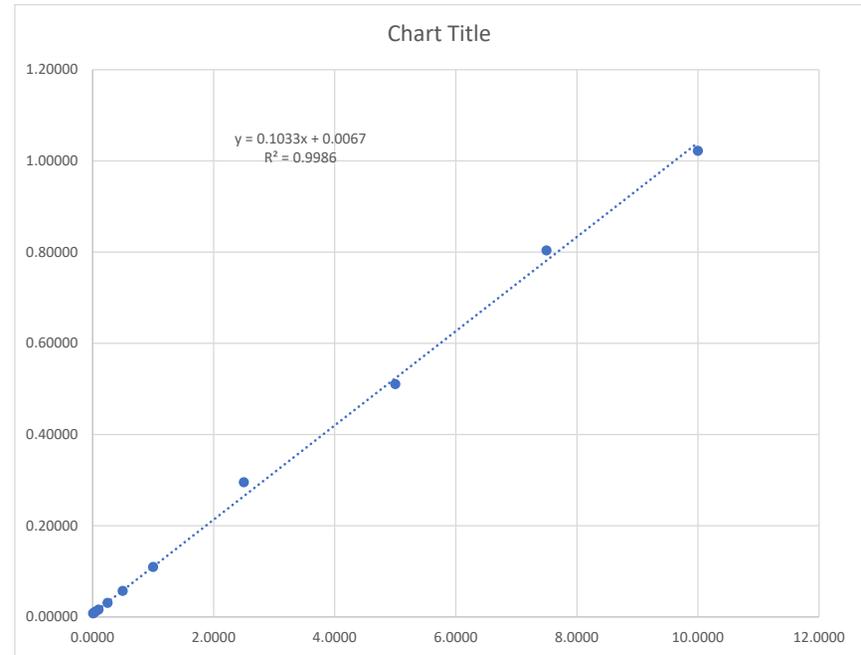
ACETONE

Weighted Linear Regression (1/A)

Page(s): 903-980

C(ug/L) <sub>x</sub>	C(ug/L) <sub>IS</sub>	Conc. Ratio (C <sub>x</sub> /C <sub>IS</sub> )	A <sub>x</sub>	A <sub>IS</sub>	Resp. Ratio (A <sub>x</sub> /A <sub>IS</sub> )
0.5	50	0.0100	5506	707059	0.00779
1.25	50	0.0250	6906	716214	0.00964
2.5	50	0.0500	8400	708394	0.01186
5	50	0.1000	11805	720199	0.01639
12.5	50	0.2500	22225	717717	0.03097
25	50	0.5000	41682	726640	0.05736
50	50	1.0000	81277	740328	0.10979
125	50	2.5000	224372	759061	0.29559
250	50	5.0000	409885	802465	0.51078
375	50	7.5000	675188	840099	0.80370
500	50	10.0000	916447	896474	1.02228

Slope: 0.1033  
Intercept: 0.0067  
r: 0.99930  
r<sup>2</sup>: 0.99860



\*(X) = target analyte

\*(IS) = internal standard

Conc. = (((Target Area/IS Area)-intercept)/slope)\*IS Conc.

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030866**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
Initial Calibration	Confirm (in raw data) that an initial calibration begins each analytical sequence, before all QC or env. samples are analyzed, using the correct number of standards (and calibration blank, if required).	Ical 3/7/2022, Inst. R	See attached TPH-DRO RSD/RF recalculations below
	Confirm (in raw data) that an initial calibration occurs at the required frequency.	Ical 3/7/2022, Inst. R	CCV was within associated Ical/ICV limits, and all samples within 12-hours of CCV.
	Confirm that initial calibration criteria are met. Spot-recalculate initial calibration results.	L4 Page 169-241, Ical 3/7/2022, Inst. R	See attached TPH-DRO RSD/RF recalculations below
		L4 Page 169-241, Ical 3/7/2022, Inst. R	See attached TPH-DRO RSD/RF recalculations below
		L4 Page 169-241, Ical 3/7/2022, Inst. R	See attached TPH-DRO RSD/RF recalculations below

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030866**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
<p>Recalculate at least one result (and %R or %D values, as appropriate) from each of the following QC samples and environmental samples, and compare your calculated results with the results the laboratory reports on their summary forms found earlier in the data package. They should agree. If they do not, then there may be problems with the package and further review is required. Note that for some QC samples, your comparison may mean simply confirming that the result reported in the summary form matches the result in the raw data – there may not be any calculation.</p>			
<b>SHOW ALL WORK FOR RECALCULATIONS</b>			
Tune	Confirm DFTPP Percent Relative Abundance	L4 Pg. 8, Sample BNA210923C, 3/13/2022 at 17:27	m/z 199 = 6.8% (1391/20405)*100 = 6.8%
ICV	Check result	L4 Pg. 235, Sample BNA220302K, 3/7/2022 at 21:13	TPH-DRO = 969.91 ug/ml (11389535*40 ug/ml)/(197201*2.382) = 969.87 ug/ml
	Recalculate one RRF	L4 Pg. 235, Sample BNA220302K, 3/7/2022 at 21:13	RFs not provided
	Recalculate one %D	L4 Pg. 235, Sample BNA220302K, 3/7/2022 at 21:13	TPH-DRO %D = 3.01% (abs(969.91 ug/ml - 1000 ug/ml)/1000 ug/ml)*100 = 3.01%
A CCV applicable to our samples	Check result	L4 Pg. 17, Sample : BNA220124N 3/13/2022 at 18:44	TPH-DRO = 996.71 ug/ml (10106707*40 ug/ml)/(170286*2.382) = 996.66 ug/ml
	Recalculate one RRF	L4 Pg. 16, Sample : BNA220124N 3/13/2022 at 18:44	CCRF = 2.374 (10106707*40 ug/ml)/(170286*1000 ug/ml) = 2.374
	Recalculate one %D	L4 Pg. 13, Sample : BNA220124M 3/12/2022 at 12:22	%D = 0.3% (abs(2.374-2.382)/2.382)*100 = 0.3%
Method Blank	Check result	L4 Pg. 19, Sample : MBLK-188521 3/12/2022 at 19:22	TPH-DRO = 204.81 ug/ml (1984790*40 ug/ml)/(162739*2.382) = 204.81 ug/ml (< RL = ND)
Surrogate	Recalculate one %R	L4 Pg. 29, Sample : 22030866-001A 3/12/2022 at 22:33	p-terphenyl-d14 %R = 75.16% (18.79 ug/ml/25 ug/ml)*100 = 75.16%
MS	Check result	NA	
	Recalculate one %R	NA	
MSD	Check result	NA	
	Recalculate one %R	NA	
	Recalculate one RPD value between MS and MSD	NA	

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030866**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
LCS	Check result	L4 Pg. 25, Sample : LCSDRO-188521 3/12/2022 at 21:17	TPH-DRO Conc. = 764.85 ug/ml (8586798*40 ug/ml)/(188534*2.382)= 825.15 ug/ml
	Recalculate one %R	Summary Report Pg. 27, SampleID: LCSDRO-188521	TPH-DRO (C10-C21) %R = 76.5% (0.765 mg/l/1.0 mg/l)*100 = 76.5%
LCSD	Check result	L4 Pg. 25, Sample : LCSDROD-188521 3/12/2022 at 21:55	TPH-DRO Conc. = 738.46 ug/ml (8343135*40 ug/ml)/(189731*2.382)= 738.43 ug/ml
	Recalculate one %R	Summary Report Pg. 27, SampleID: LCSDROD-188521	TPH-DRO (C10-C21) %R = 73.8% (0.738 mg/l/1.0 mg/l)*100 = 73.8%
	Recalculate one RPD value between LCS and LCSD	Summary Report Pg. 27, SampleID: LCSDROD-188521	TPH-DRO (C10-C21) %RPD = 3.51% (abs(0.765 mg/l-0.738 mg/l)/((0.765 mg/l+0.738 mg/l)/2))*100 = 3.59% (rounding)
Internal Standards	Recalculate one %R	NA - %Rs were not provided	IS recoveries were evaluated and were within acceptable limits.
	Recalculate one delta RT	NA - %Rs were not provided	IS RTs were evaluated and were within acceptable limits.
Sample Result for EOS-SW03-031222	Check result	L4 Pg. 29, Sample : 22030866-001A 3/12/2022 at 22:33	TPH-DRO Conc. = 211.08 ug/ml (2254747*40 ug/ml)/(179389*2.382)= 211.06 ug/ml (<RL = ND)
MDL for _____	Check result	NA - MDLs no change for aqueous undiluted samples	
RL for _____	Check result	NA - RLs no change for aqueous undiluted samples	
Convert µg/m <sup>3</sup> to ppbV (air only) for _____	Check result	NA	

Formulas:

\* Conc. (mg/kg) = {(Raw Conc. in ug/L) x (Vol. in L) x DF} / {(Sample mass in kg) x (fractional solids) x (1000)}

\*\* Serial dilution conc. (ug/L) = (Raw Conc. in ug/L) x (DF, typically 5)

\*\*\* %R = [(Measured Value) / (True Value)] x 100

\*\*\*\* %R = {(Spike sample result) - (Sample result)} / (Spike added) x 100

RPD = [(A-B) / {(A + B)/2}] x 100

Percent difference = [(Original Result - Diluted Result) / Original Result] x 100

**22030866**

Initial Calibration

SVOC by 8270C

GC-MS Inst. R

TPH-DRO/ORO

pg. 169

Concentration (ug/mL)

	250.0	500.0	750.0	1000.0	1500.0	2000.0	5000.0
Rf	2.4870	2.3850	2.3440	2.3700	2.4970	2.4120	2.1770

Std Dev

0.1071 

Mean Rf

2.3817 

%RSD

4.50  pg. 169

Level 1 (250 ug/mL) Rf Check

TPH-DRO area = 3003810

40 ug/ml

pg. 206

naphthalene-d8 (internal standard) area = 193217

250 ug/ml

pg. 206

$$\frac{3003810}{193217} \times \frac{40}{250} = 2.4874 \quad \checkmark$$

Level 7 (5000 ug/mL) Rf Check

TPH-DRO area = 57952602

40 ug/ml

pg. 218

naphthalene-d8 (internal standard) area = 212930

5000 ug/ml

pg. 218

$$\frac{57952602}{212930} \times \frac{40}{5000} = 2.1773 \quad \checkmark$$

**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

<b>Site Name</b>	Marathon Pipeline Release E22505	<b>TO/TOLIN No.</b>	68HE0519F0071/0001DC102
<b>Document Tracking No.</b>	1149c	<b>Technical Reviewer (signature and date)</b>	<i>Harry N. Ellis III</i> 5 April 2022
<b>Data Reviewer (signature and date)</b>	<i>Caron Smith</i> 4/1/2022	<b>Laboratory</b>	Teklab, Inc. – Collinsville, IL
<b>Laboratory Report No.</b>	22030895	<b>Analyses</b>	Volatile organic compounds and gasoline range organics by SW-846 method 8260B and diesel range and oil range organics by SW-846 method 8270C
<b>Samples and Matrix</b>	One surface water sample and one trip blank		
<b>Collection Date(s)</b>	March 13, 2022		
<b>Field Duplicate Pairs</b>	None		
<b>Field QC Blanks</b>	EOS-TB-03		

**INTRODUCTION**

This checklist summarizes the Stage 3 validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, Superfund Technical Assessment and Response Team (START V), EPA Region 5, Revision 3* (January 2022) and the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020).

**OVERALL EVALUATION**

No rejection of data was required for this data package. The results may be used as qualified based on the findings of this report.

**Data completeness:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Sample preservation, receipt, and holding times:**

Within Criteria	Exceedance/Notes
Y	

**Instrument Performance Checks:**

Within Criteria	Exceedance/Notes
Y	

**Initial Calibration:**

Within Criteria	Exceedance/Notes
Y	

**Continuing Calibration:**

Within Criteria	Exceedance/Notes
N	<p>The continuing calibration verification (CCV) percent difference (%D) for TPH-ORO was outside of acceptable limits. The amount of TPH-ORO found in the CCV was less than the amount spiked. Therefore, the TPH-ORO results for all samples were qualified as estimated, potentially biased low (flagged UJ).</p> <p>The CCV %Ds for acrolein and iodomethane were outside of acceptable limits. The amount of iodomethane found in the CCV was less than the amount spiked. Therefore, the iodomethane results for all samples were qualified as estimated, potentially biased low (flagged UJ). The amount of acrolein found in the CCV was greater than the amount spiked; however, acrolein was not detected in the associated samples. Therefore, no qualifications were necessary.</p> <p>In the laboratory data package, there were some instances where the CCV %D was only provided for response factors. However, some VOC analytes and TPH-DRO/ORO were calibrated according to a least squares regression; therefore, the %D calculation using response factors was not applicable. For these instances the %D was recalculated using the spike amount versus the calculated amount. Resulting qualifications, if any, were provided in the previous paragraphs.</p>



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Calibration Verification:**

Within Criteria	Exceedance/Notes
N	<p>The initial calibration verification (ICV) %D for TPH-ORO was outside of acceptable limits. The amount of TPH-ORO found in the ICV was less than the amount spiked. Therefore, the TPH-ORO results for all samples were qualified as estimated, potentially biased low (flagged UJ).</p> <p>The initial calibration verification percent recovery for 4-methyl-2-pentanone and ethyl methacrylate were above acceptable limits. However, there were no positive detects in the associated samples. No qualifications were necessary.</p>

**Method blanks:**

Within Criteria	Exceedance/Notes
Y	

**Field blanks:**

Within Criteria	Exceedance/Notes
Y	

**Interference Check Samples (ICS) (ICP metals only):**

Within Criteria	Exceedance/Notes
NA	

**Surrogates and labeled compounds:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**MS/MSDs:**

Within Criteria	Exceedance/Notes
Y	

**Post digestion spikes:**

Within Criteria	Exceedance/Notes
NA	

**Serial dilutions:**

Within Criteria	Exceedance/Notes
NA	

**Laboratory duplicates:**

Within Criteria	Exceedance/Notes
NA	

**Field duplicates:**

Within Criteria	Exceedance/Notes
NA	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**LCSs/LCSDs:**

Within Criteria	Exceedance/Notes
N	

**Sample dilutions:**

Within Criteria	Exceedance/Notes
NA	

**Re-extraction and reanalysis:**

Within Criteria	Exceedance/Notes
NA	

**Second column confirmation (GC and HPLC analyses only):**

Within Criteria	Exceedance/Notes
NA	

**Internal Standards:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Target analyte identification:**

Within Criteria	Exceedance/Notes
Y	

**Analyte quantitation and MDLs/RLs:**

Within Criteria	Exceedance/Notes
Y	No concentrations were reported between the method detection limit (MDL) and reporting limit (RL). Sample-specific MDLs and RLs are provided in the attached analytical data tables.

**Tentatively identified compounds:**

Within Criteria	Exceedance/Notes
NA	

**Other [specify]:**

Within Criteria	Exceedance/Notes
NA	



## DATA VALIDATION CHECKLIST – STAGE 3 EPA REGION 5 START CONTRACT

### Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.



MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030895

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW08-031322	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,1,1-Trichloroethane	ND		0.3	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.50	µg/L	0.50	U
EOS-SW08-031322	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30.0	µg/L	30.0	U
EOS-SW08-031322	SW8260B	1,1-Dichloroethane	ND		0.4	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,1-Dichloroethene	ND		0.4	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,1-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,2,3-Trichloropropane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,2-Dibromoethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,2-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,2-Dichloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,2-Dichloroethene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-SW08-031322	SW8260B	1,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,3-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,3-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1,3-Dichloropropene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-SW08-031322	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4	4.0	µg/L	4.0	U
EOS-SW08-031322	SW8260B	1,4-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	1-Chlorobutane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	2,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	2-Butanone	ND		1.1	10.0	µg/L	10.0	U
EOS-SW08-031322	SW8260B	2-Chloroethyl vinyl ether	ND		0.4	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	2-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	2-Hexanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW08-031322	SW8260B	2-Nitropropane	ND		1.1	10.0	µg/L	10.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030895

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW08-031322	SW8260B	4-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	4-Methyl-2-pentanone	ND		0.4	10.0	µg/L	10.0	U
EOS-SW08-031322	SW8260B	Acetone	ND		2.4	10.0	µg/L	10.0	U
EOS-SW08-031322	SW8260B	Acetonitrile	ND		1.4	10.0	µg/L	10.0	U
EOS-SW08-031322	SW8260B	Acrolein	ND		4.4	20.0	µg/L	20.0	U
EOS-SW08-031322	SW8260B	Acrylonitrile	ND		0.2	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Allyl chloride	ND		0.2	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Benzene	ND		0.1	0.50	µg/L	0.50	U
EOS-SW08-031322	SW8260B	Bromobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Bromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Bromodichloromethane	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Bromoform	ND		0.8	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Bromomethane	ND		1	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Carbon disulfide	ND		0.7	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Carbon tetrachloride	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Chlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Chloroethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Chloroform	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Chloromethane	ND		0.2	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Chloroprene	ND		0.1	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	cis-1,2-Dichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	cis-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Cyclohexanone	ND		16	20.0	µg/L	20.0	U
EOS-SW08-031322	SW8260B	Dibromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Dibromomethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Dichlorodifluoromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Diisopropyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Ethyl acetate	ND		2.6	10.0	µg/L	10.0	U
EOS-SW08-031322	SW8260B	Ethyl ether	ND		0.2	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Ethyl methacrylate	ND		0.3	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Ethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Ethyl-tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030895

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW08-031322	SW8260B	Hexachlorobutadiene	ND		0.3	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Hexachloroethane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Iodomethane	ND		2.6	5.0	µg/L	5.0	UJ
EOS-SW08-031322	SW8260B	Isopropylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	m,p-Xylenes	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Methacrylonitrile	ND		0.5	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Methyl Methacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Methyl tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Methylacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Methylene chloride	ND		0.9	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Naphthalene	ND		0.3	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	n-Butyl acetate	ND		0.3	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	n-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	n-Heptane	ND		0.2	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	n-Hexane	ND		0.6	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Nitrobenzene	ND		10	50.0	µg/L	50.0	U
EOS-SW08-031322	SW8260B	n-Propylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	o-Xylene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Pentachloroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	p-Isopropyltoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Propionitrile	ND		0.9	10.0	µg/L	10.0	U
EOS-SW08-031322	SW8260B	sec-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Styrene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	tert-Amyl methyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	tert-Butyl alcohol	ND		1.5	10.0	µg/L	10.0	U
EOS-SW08-031322	SW8260B	tert-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Tetrachloroethene	ND		0.1	0.50	µg/L	0.50	U
EOS-SW08-031322	SW8260B	Tetrahydrofuran	ND		0.8	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Toluene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	TPH - GRO (C6 - C10)	ND		137	500	µg/L	500	U
EOS-SW08-031322	SW8260B	trans-1,2-Dichloroethene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	trans-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030895

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW08-031322	SW8260B	Trichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Trichlorofluoromethane	ND		0.1	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Vinyl acetate	ND		0.3	5.0	µg/L	5.0	U
EOS-SW08-031322	SW8260B	Vinyl chloride	ND		0.1	2.0	µg/L	2.0	U
EOS-SW08-031322	SW8260B	Xylenes, Total	ND		0.3	4.0	µg/L	4.0	U
EOS-SW08-031322	SW8270C	TPH-DRO (C10 - C21)	ND		0.255	0.300	mg/L	0.300	U
EOS-SW08-031322	SW8270C	TPH-ORO (C21 - C35)	ND		0.255	0.300	mg/L	0.300	UJ
EOS-TB-03	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,1,1-Trichloroethane	ND		0.3	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.50	µg/L	0.50	U
EOS-TB-03	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30.0	µg/L	30.0	U
EOS-TB-03	SW8260B	1,1-Dichloroethane	ND		0.4	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,1-Dichloroethene	ND		0.4	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,1-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,2,3-Trichloropropane	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,2-Dibromoethane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,2-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,2-Dichloroethane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,2-Dichloroethene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-TB-03	SW8260B	1,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,3-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,3-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	1,3-Dichloropropene, Total	ND		0.2	4.0	µg/L	4.0	U
EOS-TB-03	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4	4.0	µg/L	4.0	U
EOS-TB-03	SW8260B	1,4-Dichlorobenzene	ND		0.1	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030895

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-TB-03	SW8260B	1-Chlorobutane	ND		0.1	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	2,2-Dichloropropane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	2-Butanone	ND		1.1	10.0	µg/L	10.0	U
EOS-TB-03	SW8260B	2-Chloroethyl vinyl ether	ND		0.4	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	2-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	2-Hexanone	ND		0.4	10.0	µg/L	10.0	U
EOS-TB-03	SW8260B	2-Nitropropane	ND		1.1	10.0	µg/L	10.0	U
EOS-TB-03	SW8260B	4-Chlorotoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	4-Methyl-2-pentanone	ND		0.4	10.0	µg/L	10.0	U
EOS-TB-03	SW8260B	Acetone	ND		2.4	10.0	µg/L	10.0	U
EOS-TB-03	SW8260B	Acetonitrile	ND		1.4	10.0	µg/L	10.0	U
EOS-TB-03	SW8260B	Acrolein	ND		4.4	20.0	µg/L	20.0	U
EOS-TB-03	SW8260B	Acrylonitrile	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Allyl chloride	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Benzene	ND		0.1	0.50	µg/L	0.50	U
EOS-TB-03	SW8260B	Bromobenzene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Bromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Bromodichloromethane	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Bromoform	ND		0.8	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Bromomethane	ND		1	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Carbon disulfide	ND		0.7	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Carbon tetrachloride	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Chlorobenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Chloroethane	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Chloroform	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Chloromethane	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Chloroprene	ND		0.1	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	cis-1,2-Dichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	cis-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Cyclohexanone	ND		16	20.0	µg/L	20.0	U
EOS-TB-03	SW8260B	Dibromochloromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Dibromomethane	ND		0.2	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030895

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-TB-03	SW8260B	Dichlorodifluoromethane	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Diisopropyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Ethyl acetate	ND		2.6	10.0	µg/L	10.0	U
EOS-TB-03	SW8260B	Ethyl ether	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Ethyl methacrylate	ND		0.3	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Ethylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Ethyl-tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Hexachlorobutadiene	ND		0.3	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Hexachloroethane	ND		0.1	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Iodomethane	ND		2.6	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Isopropylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	m,p-Xylenes	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Methacrylonitrile	ND		0.5	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Methyl Methacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Methyl tert-butyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Methylacrylate	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Methylene chloride	ND		0.9	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Naphthalene	ND		0.3	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	n-Butyl acetate	ND		0.3	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	n-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	n-Heptane	ND		0.2	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	n-Hexane	ND		0.6	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Nitrobenzene	ND		10	50.0	µg/L	50.0	U
EOS-TB-03	SW8260B	n-Propylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	o-Xylene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Pentachloroethane	ND		0.4	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	p-Isopropyltoluene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Propionitrile	ND		0.9	10.0	µg/L	10.0	U
EOS-TB-03	SW8260B	sec-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Styrene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	tert-Amyl methyl ether	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	tert-Butyl alcohol	ND		1.5	10.0	µg/L	10.0	U
EOS-TB-03	SW8260B	tert-Butylbenzene	ND		0.1	2.0	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030895

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-TB-03	SW8260B	Tetrachloroethene	ND		0.1	0.50	µg/L	0.50	U
EOS-TB-03	SW8260B	Tetrahydrofuran	ND		0.8	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Toluene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	TPH - GRO (C6 - C10)	ND		137	500	µg/L	500	U
EOS-TB-03	SW8260B	trans-1,2-Dichloroethene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	trans-1,3-Dichloropropene	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Trichloroethene	ND		0.2	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Trichlorofluoromethane	ND		0.1	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Vinyl acetate	ND		0.3	5.0	µg/L	5.0	U
EOS-TB-03	SW8260B	Vinyl chloride	ND		0.1	2.0	µg/L	2.0	U
EOS-TB-03	SW8260B	Xylenes, Total	ND		0.3	4.0	µg/L	4.0	U

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

Data Package Number: 22030895

Method: 8260B

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
Initial Calibration	Confirm (in raw data) that an initial calibration begins each analytical sequence, before all QC or env. samples are analyzed, using the correct number of standards (and calibration blank, if required).	Ical 3/7/2022, Inst. GCMS\1	See Ical recalculation sheet below
	Confirm (in raw data) that an initial calibration occurs at the required frequency.	Ical 3/7/2022, Inst. GCMS\1	CCV was within associated Ical/ICV limits, and all samples within 12-hours of CCV.
	Confirm that initial calibration criteria are met. Spot-recalculate initial calibration results.	L4 Page 739, ICAL-AK220307A-5.0 3/7/2022, GCMS\1, chloroethane	Reported RRF: 0.199 $(14277*50 \text{ ug/l}) / (717717*5.0 \text{ ug/l}) = 0.199$
		L4 Page 681, VOCAK2204.M 3/7/2022, GCMS\1, chloroethane	Reported RRF: 0.226 $(0.285+0.256+0.229+0.212+0.199+0.221+0.213+0.208+0.218+0.223+0.221)/11 = 0.226$
	L4 Page 681, VOCAK2204.M 3/7/2022, GCMS\1, chloroethane	Reported %RSD = 10.72 $(0.0244/0.226)*100 = 10.79$	
Recalculate at least one result (and %R or %D values, as appropriate) from each of the following QC samples and environmental samples, and compare your calculated results with the <b>SHOW ALL WORK FOR RECALCULATIONS</b>			
Tune	Confirm DFTPP Percent Relative Abundance	L4 Pg. 361, Sample TUNE-AE220312.A-1, 3/14/2022 at 06:16	m/z 96 = 6.4% $(5827/90493)*100 = 6.4\%$
ICV	Check result	L4 Pg. 777, Sample ICV-AK220307A-1, 3/7/2022 at 17:07	Acetone Conc. = 128.69 ug/l $((240546/876351)-0.006744)/0.1033*50 \text{ ug/l} = 129.6 \text{ ug/l}$
	Recalculate one RRF	NA	Linear Weigther Regression used - RFs not applicable
	Recalculate one %D	L4 Pg. 774, Sample ICV-AK220307A-1, 3/7/2022 at 17:07	Acetone %R = 103% $(128.69 \text{ ug/l}/125 \text{ ug/l})*100 = 103\%$
A CCV applicable to our samples	Check result	L4 Pg. 366, Sample CCV-AK220314A-1, 3/14/2022 at 06:39	Chloroethane Conc. = 43.50 ug/l $(184641*50 \text{ ug/l}) / (939230*0.226) = 43.50 \text{ ug/l}$
	Recalculate one RRF	L4 Pg. 362, Sample CCV-AK220314A-1, 3/14/2022 at 06:39	Chloroethane CCRF = 0.197 $(184641*50 \text{ ug/l}) / (939230*50 \text{ ug/l}) = 0.197$
	Recalculate one %D	L4 Pg. 366, Sample CCV-AK220314A-1, 3/14/2022 at 06:39	Chloroethane %D = 12.8% $(\text{abs}(0.226-0.197)/0.226)*100 = 12.8\%$
Method Blank	Check result	L4 Pg. 431, Sample : MBLK-AK220314A-1 3/14/2022 at 08:13	Acetone = 0.21 ug/l $((6922/964194)-0.006744)/0.1033*50 \text{ ug/l} = 0.21 \text{ ug/l} (< \text{RL} = \text{ND})$

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

Data Package Number: 22030895

Method: 8260B

Surrogate	Recalculate one %R	L4 Pg. 598, Sample : 22030895-001B 3/14/2022 at 13:34	toluene-d8 %R = 99.68% (49.84 ug/l/50 ug/l)*100 = 99.68%
MS	Check result	L4 Pg. 617, Sample : 22030895-001BMS 3/14/2022 at 13:57	Chlorobenzene = 50.49 ug/l (909723*50 ug/l)/(754408*1.194) = 50.49 ug/l
	Recalculate one %R	Summary Report Pg. 26, SampID: 22030895-001BMS	Chlorobenzene %R = 101% (50.49 ug/l/50 ug/l)*100 = 101%
MSD	Check result	L4 Pg. 637, Sample : 22030895-001BMS 3/14/2022 at 13:57	Chlorobenzene = 49.96 ug/l (890965*50 ug/l)/(746722*1.194) = 49.96 ug/l
	Recalculate one %R	Summary Report Pg. 27, SampID: 22030895-001BMSD	Chlorobenzene %R = 99.9% (49.96 ug/l/50 ug/l)*100 = 99.9%
	Recalculate one RPD value between MS and MSD	Summary Report Pg. 27, SampID: 22030895-001BMSD	Chlorobenzene %RPD = 1.06% abs(50.49 ug/l-49.96 ug/l)/((50.19 ug/l+49.96 ug/l)/2)*100 = 1.06%
LCS	Check result	L4 Pg. 402, Sample : LCS-AK220314A-1 3/14/2022 at 07:03	Acetone Conc. = 121.92 ug/l (((256001/983101)-0.006744)/0.1033)*50 ug/l = 122.78 ug/l
	Recalculate one %R	Summary Report Pg. 20, SampID: LCS-AK220314A-1	Acetone %R = 97.5% (121.92 ug/l/125 ug/l)*100 = 97.5%
LCSD	Check result	L4 Pg. 425, Sample : LCSD-AK220314A-1 3/14/2022 at 07:26	Acetone Conc. = 126.53 ug/l (((272412/1008941)-0.006744)/0.1033)*50 ug/l = 127.42 ug/l
	Recalculate one %R	Summary Report Pg. 23, SampID: LCSD-AK220314A-1	Acetone %R = 101.2% (126.53 ug/l/125 ug/l)*100 = 101.2%
	Recalculate one RPD value between LCS and LCSD	Summary Report Pg. 23, SampID: LCSD-AK220314A-1	Acetone %RPD = 3.71% abs(126.53 ug/l-121.92 ug/l)/((126.53 ug/l+121.92 ug/l)/2)*100 = 3.71%
Internal Standards	Recalculate one %R	NA - %Rs were not provided	IS recoveries were evaluated and were within acceptable limits.
	Recalculate one delta RT	NA - %Rs were not provided	IS RTs were evaluated and were within acceptable limits.
Sample Result for EOS-SW08-031222	Check result	L4 Pg. 598, Sample : 22030895-001B 3/14/2022 at 13:34	Acetone Conc. = 6.67 ug/l (((20303/984366)-0.006744)/0.1033)*50 ug/l = 6.72 ug/l (<RL = ND)
MDL for _____	Check result	NA - MDLs no change for aqueous undiluted samples	
RL for _____	Check result	NA - RLs no change for aqueous undiluted samples	
Convert $\mu\text{g}/\text{m}^3$ to ppbV (air only) for	Check result	NA	

Formulas:

\* Conc. (mg/kg) =  $\{(\text{Raw Conc. in ug/L}) \times (\text{Vol. in L}) \times \text{DF}\} / \{(\text{Sample mass in kg}) \times (\text{fractional solids}) \times (1000)\}$

\*\* Serial dilution conc. (ug/L) = (Raw Conc. in ug/L) x (DF, typically 5)

\*\*\* %R =  $[(\text{Measured Value}) / (\text{True Value})] \times 100$

\*\*\*\* %R =  $\{(\text{Spike sample result}) - (\text{Sample result})\} / (\text{Spike added}) \times 100$

RPD =  $[(A-B) / \{(A + B)/2\}] \times 100$

Percent difference =  $[(\text{Original Result} - \text{Diluted Result}) / \text{Original Result}] \times 100$

**22030895**

Initial Calibration 3/7/22

VOC

GC-MS\1 (Inst. AK)

chloroethane

pg. 681

Concentration (ug/L)

	0.2	0.5	1.0	2.0	5.0	10.0	20.0	50.0	100.0	150.0	200.0
Rf	0.285	0.256	0.229	0.212	0.199	0.221	0.213	0.208	0.218	0.223	0.221

Std Dev

0.0244

Mean Rf

0.226



%RSD

10.78



Concentration 5 (ug/L) Rf Check

chloroethane area = 14277, 5.0 ug/L pg. 739

Fluorobenzene (internal standard) area = 717717, 50.0 ug/L pg. 739

$$\frac{14277}{717717} \times \frac{50.0 \text{ ug/L}}{5.0 \text{ ug/L}} = 0.199 \quad \checkmark$$

Concentration 50 (ug/L) Rf Check

chloroethane area = 158168, 5.0 ug/L pg. 751

Fluorobenzene (internal standard) area = 759061, 50.0 ug/L pg. 751

$$\frac{158168}{759061} \times \frac{50.0 \text{ ug/L}}{5.0 \text{ ug/L}} = 0.208 \quad \checkmark$$



**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030895**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
Initial Calibration	Confirm (in raw data) that an initial calibration begins each analytical sequence, before all QC or env. samples are analyzed, using the correct number of standards (and calibration blank, if required).	Ical 1/3/2022, Inst. T	See Ical linear regression recalculation
	Confirm (in raw data) that an initial calibration occurs at the required frequency.	Ical 1/3/2022, Inst. T	CCV was within associated Ical/ICV limits, and all samples within 12-hours of CCV.
	Confirm that initial calibration criteria are met. Spot-recalculate initial calibration results.	L4 Page 203-263, 1/3/2022, Inst T, TPH-DRO	See attached TPH-DRO linear regression recalculation
		L4 Page 203-263, 1/3/2022, Inst T, TPH-DRO	See attached TPH-DRO linear regression recalculation
		L4 Page 203-263, 1/3/2022, Inst T, TPH-DRO	See attached TPH-DRO linear regression recalculation

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030895**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
<p>Recalculate at least one result (and %R or %D values, as appropriate) from each of the following QC samples and environmental samples, and compare your calculated results with the results the laboratory reports on their summary forms found earlier in the data package. They should agree. If they do not, then there may be problems with the package and further review is required. Note that for some QC samples, your comparison may mean simply confirming that the result reported in the summary form matches the result in the raw data – there may not be any calculation.</p> <p align="right"><b>SHOW ALL WORK FOR RECALCULATIONS</b></p>			
Tune	Confirm DFTPP Percent Relative Abundance	L4 Pg. 63, Sample BNA210923C, 3/14/2022 at 13:08	m/z 199 = 6.8% $(15483/227307)*100 = 6.81\%$
ICV	Check result	L4 Pg. 264, Sample BNA210819E, 1/4/2022 at 03:52	TPH-DRO Conc. = 1015.60 ug/ml $((107125607/1768489)-5.199)/2.181*40 \text{ ug/ml} = 1015.60 \text{ ug/ml}$
	Recalculate one RRF	NA	Linear Weigthed Regression used - RFs not applicable
	Recalculate one %D	L4 Pg. 263, Sample BNA210819E, 1/4/2022 at 03:52	TPH-DRO %D = 1.6% $(\text{abs}(1015.6 \text{ ug/ml} - 1000 \text{ ug/ml})/1000 \text{ ug/ml})*100 = 1.56\%$
A CCV applicable to our samples	Check result	L4 Pg. 70, Sample : BNA220124M 3/14/2022 at 14:27	TPH-DRO Conc. = 987.52 ug/ml $((71215914/1206159)-5.199)/2.181*40 \text{ ug/ml} = 987.52 \text{ ug/ml}$
	Recalculate one RRF	NA	Linear Weigthter Regression used - RFs not applicable
	Recalculate one %D	L4 Pg. 69, Sample : BNA220124M 3/14/2022 at 14:27	TPH-DRO %D = 1.2% $(\text{abs}(987.52 \text{ ug/ml}-1000 \text{ ug/ml})/1000 \text{ ug/ml})*100 = 1.2\%$
Method Blank	Check result	L4 Pg. 19, Sample : MBLK-188521 3/12/2022 at 19:22	TPH-DRO = 204.81 ug/ml $(1984790*40 \text{ ug/ml})/(162739*2.382) = 204.81 \text{ ug/ml} (< \text{RL} = \text{ND})$
Surrogate	Recalculate one %R	L4 Pg. 102, Sample : 22030895-001A 3/14/2022 at 19:06	p-terphenyl-d14 %R = 137.2% $(34.30 \text{ ug/ml}/25 \text{ ug/ml})*100 = 137.2\%$
MS	Check result	L4 Pg. 109, Sample : 22030895-001AMS 3/14/2022 at 19:46	TPH-DRO Conc. = 1478.25 ug/ml $((115643457/1347818)-5.199)/2.181*40 \text{ ug/ml} = 1478.25 \text{ ug/ml}$
	Recalculate one %R	Summary Report Pg. 16, SampID: 22030895-001AMS	TPH-DRO %R = 73.9% $(1478.25 \text{ mg/l}/2000 \text{ mg/l})*100 = 73.9\%$
MSD	Check result	L4 Pg. 111, Sample : 22030895-001AMSD 3/14/2022 at 20:26	TPH-DRO Conc. = 1462.52 ug/ml $((120041831/1413202)-5.199)/2.181*40 \text{ ug/ml} = 1462.52 \text{ ug/ml}$
	Recalculate one %R	Summary Report Pg. 16, SampID: 22030895-001AMSD	TPH-DRO %R = 73.1% $(1462.52 \text{ mg/l}/2000 \text{ mg/l})*100 = 73.1\%$
	Recalculate one RPD value between MS and MSD	Summary Report Pg. 16, SampID: 22030895-001AMSD	TPH-DRO (C10-C21) %RPD = 1.07% $(\text{abs}(1478.25 \text{ mg/l}-1462.52 \text{ mg/l})/((1478.25 \text{ mg/l}+1462.52 \text{ mg/l})/2))*100 = 1.07\%$

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030895**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
LCS	Check result	L4 Pg. 25, Sample : LCSDRO-188521 3/13/2022 at 21:17	TPH-DRO Conc. = 764.85 ug/ml (8586798*40 ug/ml)/(188534*2.382) = 764.82 ug/ml
	Recalculate one %R	Summary Report Pg. 15, SampleID: LCSDRO-188521	TPH-DRO (C10-C21) %R = 76.5% (0.765 mg/l/1.0 mg/l)*100 = 76.5%
LCSD	Check result	L4 Pg. 27, Sample : LCSDROD-188521 3/12/2022 at 21:55	TPH-DRO Conc. = 738.46 ug/ml (8343135*40 ug/ml)/(189731*2.382)= 738.43 ug/ml
	Recalculate one %R	Summary Report Pg. 15, SampleID: LCSDROD-188521	TPH-DRO (C10-C21) %R = 73.8% (0.738 mg/l/1.0 mg/l)*100 = 73.8%
	Recalculate one RPD value between LCS and LCSD	Summary Report Pg. 15, SampleID: LCSDROD-188521	TPH-DRO (C10-C21) %RPD = 3.51% (abs(0.765 mg/l-0.738 mg/l)/((0.765 mg/l+0.738 mg/l)/2))*100 = 3.59% (rounding)
Internal Standards	Recalculate one %R	NA - %Rs were not provided	IS recoveries were evaluated and were within acceptable limits.
	Recalculate one delta RT	NA - %Rs were not provided	IS RTs were evaluated and were within acceptable limits.
Sample Result for EOS-SW08-031222	Check result	L4 Pg. 102, Sample : 22030895-001A 3/14/2022 at 19:06	TPH-DRO Conc. = 241.51 ug/ml (((23647502/1287509)-5.199)/2.181)*40 ug/ml = 241.51 ug/ml (<RL = ND)
MDL for _____	Check result	NA - MDLs no change for aqueous undiluted samples	
RL for _____	Check result	NA - RLs no change for aqueous undiluted samples	
Convert µg/m <sup>3</sup> to ppbV (air only) for	Check result	NA	

Formulas:

\*  $\text{Conc. (mg/kg)} = \{(\text{Raw Conc. in ug/L}) \times (\text{Vol. in L}) \times \text{DF}\} / \{(\text{Sample mass in kg}) \times (\text{fractional solids}) \times (1000)\}$

\*\*  $\text{Serial dilution conc. (ug/L)} = (\text{Raw Conc. in ug/L}) \times (\text{DF, typically 5})$

\*\*\*  $\%R = [(\text{Measured Value}) / (\text{True Value})] \times 100$

\*\*\*\*  $\%R = \{(\text{Spike sample result}) - (\text{Sample result})\} / (\text{Spike added}) \times 100$

$\text{RPD} = [(A-B) / \{(A + B)/2\}] \times 100$

$\text{Percent difference} = [(\text{Original Result} - \text{Diluted Result}) / \text{Original Result}] \times 100$

**Report No: 22030895**

TPH-DRO by 8270C - Initial Calibration 1/3/2022

**GC-MS Instrument T**

**TPH-DRO/ORO**

**Weighted Linear Regression (1/A)**

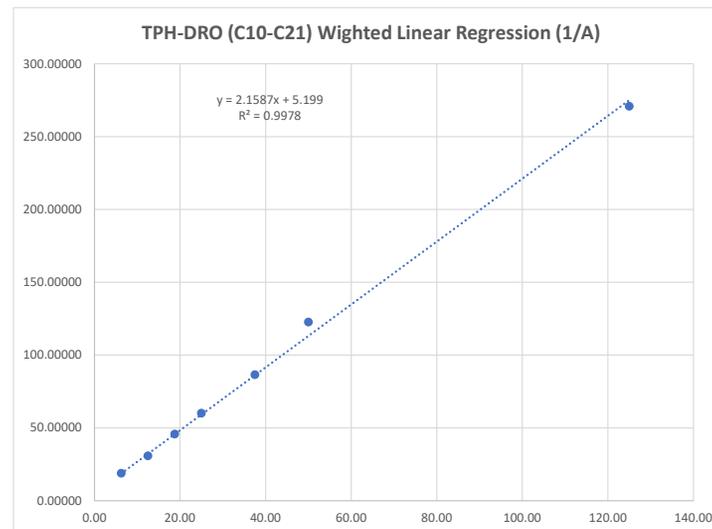
Page(s): 203-263

C(ug/mL) <sub>x</sub>	C(ug/mL) <sub>IS</sub>	Conc. Ratio (C <sub>x</sub> /C <sub>IS</sub> )	A <sub>x</sub>	A <sub>IS</sub>	Resp. Ratio (A <sub>x</sub> /A <sub>IS</sub> )
250	40	6.25	33121815	1752202	18.90297
500	40	12.50	53658608	1734782	30.93104
750	40	18.75	78340351	1708995	45.84001
1000	40	25.00	105572335	1753395	60.21024
1500	40	37.50	150847373	1740696	86.65923
2000	40	50.00	214742076	1750511	122.67394
5000	40	125.00	521756692	1925643	270.95193

Slope: 2.1600  
 Intercept: 5.1990  
 r: 0.99890  
 r<sup>2</sup>: 0.99780

\*(X) = target analyte

\*(IS) = internal standard



Conc. = (((Target Area/IS Area)-intercept)/slope)\*IS Conc.

**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

<b>Site Name</b>	Marathon Pipeline Release E22505	<b>TO/TOLIN No.</b>	68HE0519F0071/0001DC102
<b>Document Tracking No.</b>	1149d	<b>Technical Reviewer (signature and date)</b>	<i>Harry N. Ellis III</i> 5 April 2022
<b>Data Reviewer (signature and date)</b>	<i>Caron Smith</i> 4/4/2022	<b>Laboratory</b>	Teklab, Inc. – Collinsville, IL
<b>Laboratory Report No.</b>	22030941	<b>Analyses</b> Volatile organic compounds and gasoline range organics by SW-846 method 8260B and semi-volatile organic compounds, diesel range organics, and oil range organics by SW-846 method 8270C	
<b>Samples and Matrix</b>	Four surface water samples (including one field duplicate) and one trip blank		
<b>Collection Date(s)</b>	March 14, 2022		
<b>Field Duplicate Pairs</b>	EOS-SW07-031422 / EOS-SW07-031422-D		
<b>Field QC Blanks</b>	EOS-TB-04		

**INTRODUCTION**

This checklist summarizes the Stage 3 validation performed on the subject laboratory report, in accordance with the U.S. Environmental Protection Agency (EPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (January 2009). Analytical data were evaluated in general accordance with the Tetra Tech *Quality Assurance Project Plan, Superfund Technical Assessment and Response Team (START V), EPA Region 5, Revision 3* (January 2022) and the EPA *National Functional Guidelines (NFG) for Organic Superfund Methods Data Review* (November 2020).

**OVERALL EVALUATION**

No rejection of data was required for this data package. The results may be used as qualified based on the findings of this report.

**Data completeness:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Sample preservation, receipt, and holding times:**

Within Criteria	Exceedance/Notes
N	The cooler temperature upon receipt at the laboratory was 9.6 degrees Celsius (°C), which is 3.9°C above the QAPP limits. The samples were collected on 3/14/2022 and were received by the laboratory on 3/14/2022. No qualifications were deemed necessary for the elevated cooler temperature as the samples were received by the laboratory less than 6 hours after collection.

**Instrument Performance Checks:**

Within Criteria	Exceedance/Notes
Y	

**Initial Calibration:**

Within Criteria	Exceedance/Notes
Y	

**Continuing Calibration:**

Within Criteria	Exceedance/Notes
N	<p>The continuing calibration verification (CCV) percent difference (%D) for TPH-ORO was outside of acceptable limits. The amount of TPH-ORO found in the CCV was less than the amount spiked. Therefore, the TPH-ORO results for all samples were qualified as estimated, potentially biased low (flagged UJ).</p> <p>In the laboratory data package, there were some instances where the CCV %D was only provided for response factors. However, some SVOC and VOC analytes, as well as TPH-DRO were calibrated according to a least squares regression; therefore, the %D calculation using response factors was not applicable. For these instances the %D was recalculated using the spike amount versus the calculated amount. Resulting qualifications, if any, were provided in the previous paragraph.</p>



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Calibration Verification:**

Within Criteria	Exceedance/Notes
N	<p>The initial calibration verification (ICV) %D for TPH-ORO was outside of acceptable limits. The amount of TPH-ORO found in the ICV was less than the amount spiked. Therefore, the TPH-ORO results for all samples were qualified as estimated, potentially biased low (flagged UJ).</p> <p>The initial calibration verification percent recovery for 4-methyl-2-pentanone and ethyl methacrylate were above acceptable limits. However, there were no positive detects in the associated samples. No qualifications were necessary.</p>

**Method blanks:**

Within Criteria	Exceedance/Notes
Y	

**Field blanks:**

Within Criteria	Exceedance/Notes
Y	

**Interference Check Samples (ICS) (ICP metals only):**

Within Criteria	Exceedance/Notes
NA	

**Surrogates and labeled compounds:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**MS/MSDs:**

Within Criteria	Exceedance/Notes
Y	

**Post digestion spikes:**

Within Criteria	Exceedance/Notes
NA	

**Serial dilutions:**

Within Criteria	Exceedance/Notes
NA	

**Laboratory duplicates:**

Within Criteria	Exceedance/Notes
NA	

**Field duplicates:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**LCSs/LCSDs:**

Within Criteria	Exceedance/Notes
N	The laboratory control sample (LCS) percent recovery (%R) for 4-methyl-2-pentanone was above acceptable limits. However, the average %R for 4-methyl-2-pentanone in the LCS/laboratory control sample duplicate (LCSD) pair was within acceptable limits. As a result, no qualifications were necessary.

**Sample dilutions:**

Within Criteria	Exceedance/Notes
NA	

**Re-extraction and reanalysis:**

Within Criteria	Exceedance/Notes
NA	

**Second column confirmation (GC and HPLC analyses only):**

Within Criteria	Exceedance/Notes
NA	

**Internal Standards:**

Within Criteria	Exceedance/Notes
Y	



**DATA VALIDATION CHECKLIST – STAGE 3  
EPA REGION 5 START CONTRACT**

**Target analyte identification:**

Within Criteria	Exceedance/Notes
Y	

**Analyte quantitation and MDLs/RLs:**

Within Criteria	Exceedance/Notes
Y	No concentrations were reported between the method detection limit (MDL) and reporting limit (RL). Sample-specific MDLs and RLs are provided in the attached analytical data tables.

**Tentatively identified compounds:**

Within Criteria	Exceedance/Notes
NA	

**Other [specify]:**

Within Criteria	Exceedance/Notes
NA	



## DATA VALIDATION CHECKLIST – STAGE 3 EPA REGION 5 START CONTRACT

### Overall Qualifications:

See results summary pages attached for changes to the laboratory qualifiers based upon this validation. The following is a list of qualifiers and definitions that may be used for the validation of this data package:

J	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample.
J+	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased high.
J-	The analyte was positively identified; the associated value is the approximate concentration of the analyte in the sample and may be biased low.
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated value is the approximate concentration of the analyte in the sample.
R	The sample result is rejected as unusable due to serious deficiencies in one or more quality control criteria. The analyte may or may not be present in the sample.
U	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit).
UJ	The analyte was analyzed for, but was not detected at or above the associated value (reporting limit), which is considered approximate due to deficiencies in one or more quality control criteria.



MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW05-031422	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,1,1-Trichloroethane	ND		0.3		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	1,1,2-Trichloroethane	ND		0.1		0.5 µg/L	0.5	U
EOS-SW05-031422	SW8260B	1,1-Dichloro-2-propanone	ND		2.7		30 µg/L	30.0	U
EOS-SW05-031422	SW8260B	1,1-Dichloroethane	ND		0.4		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,1-Dichloroethene	ND		0.4		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,1-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,2,3-Trichlorobenzene	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,2,3-Trichloropropane	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,2,3-Trimethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,2,4-Trichlorobenzene	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,2,4-Trimethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,2-Dibromoethane	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,2-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,2-Dichloroethane	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,2-Dichloroethene, Total	ND		0.2		4 µg/L	4.0	U
EOS-SW05-031422	SW8260B	1,2-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,3,5-Trimethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,3-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,3-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1,3-Dichloropropene, Total	ND		0.2		4 µg/L	4.0	U
EOS-SW05-031422	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4		4 µg/L	4.0	U
EOS-SW05-031422	SW8260B	1,4-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	1-Chlorobutane	ND		0.1		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	2,2-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	2-Butanone	ND		1.1		10 µg/L	10.0	U
EOS-SW05-031422	SW8260B	2-Chloroethyl vinyl ether	ND		0.4		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	2-Chlorotoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	2-Hexanone	ND		0.4		10 µg/L	10.0	U
EOS-SW05-031422	SW8260B	2-Nitropropane	ND		1.1		10 µg/L	10.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW05-031422	SW8260B	4-Chlorotoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	4-Methyl-2-pentanone	ND		0.4		10 µg/L	10.0	U
EOS-SW05-031422	SW8260B	Acetone	ND		2.4		10 µg/L	10.0	U
EOS-SW05-031422	SW8260B	Acetonitrile	ND		1.4		10 µg/L	10.0	U
EOS-SW05-031422	SW8260B	Acrolein	ND		4.4		20 µg/L	20.0	U
EOS-SW05-031422	SW8260B	Acrylonitrile	ND		0.2		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Allyl chloride	ND		0.2		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Benzene	ND		0.1		0.5 µg/L	0.5	U
EOS-SW05-031422	SW8260B	Bromobenzene	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Bromochloromethane	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Bromodichloromethane	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Bromoform	ND		0.8		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Bromomethane	ND		1		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Carbon disulfide	ND		0.7		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Carbon tetrachloride	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Chlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Chloroethane	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Chloroform	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Chloromethane	ND		0.2		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Chloroprene	ND		0.1		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	cis-1,2-Dichloroethene	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	cis-1,3-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Cyclohexanone	ND		16		20 µg/L	20.0	U
EOS-SW05-031422	SW8260B	Dibromochloromethane	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Dibromomethane	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Dichlorodifluoromethane	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Diisopropyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Ethyl acetate	ND		2.6		10 µg/L	10.0	U
EOS-SW05-031422	SW8260B	Ethyl ether	ND		0.2		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Ethyl methacrylate	ND		0.3		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Ethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Ethyl-tert-butyl ether	ND		0.1		2 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW05-031422	SW8260B	Hexachlorobutadiene	ND		0.3		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Hexachloroethane	ND		0.1		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Iodomethane	ND		2.6		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Isopropylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	m,p-Xylenes	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Methacrylonitrile	ND		0.5		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Methyl Methacrylate	ND		0.2		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Methyl tert-butyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Methylacrylate	ND		0.2		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Methylene chloride	ND		0.9		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Naphthalene	ND		0.3		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	n-Butyl acetate	ND		0.3		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	n-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	n-Heptane	ND		0.2		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	n-Hexane	ND		0.6		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Nitrobenzene	ND		10		50 µg/L	50.0	U
EOS-SW05-031422	SW8260B	n-Propylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	o-Xylene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Pentachloroethane	ND		0.4		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	p-Isopropyltoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Propionitrile	ND		0.9		10 µg/L	10.0	U
EOS-SW05-031422	SW8260B	sec-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Styrene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	tert-Amyl methyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	tert-Butyl alcohol	ND		1.5		10 µg/L	10.0	U
EOS-SW05-031422	SW8260B	tert-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Tetrachloroethene	ND		0.1		0.5 µg/L	0.5	U
EOS-SW05-031422	SW8260B	Tetrahydrofuran	ND		0.8		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Toluene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	TPH - GRO (C6 - C10)	ND		137		500 µg/L	500	U
EOS-SW05-031422	SW8260B	trans-1,2-Dichloroethene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	trans-1,3-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2		2 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW05-031422	SW8260B	Trichloroethene	ND		0.2		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Trichlorofluoromethane	ND		0.1		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Vinyl acetate	ND		0.3		5 µg/L	5.0	U
EOS-SW05-031422	SW8260B	Vinyl chloride	ND		0.1		2 µg/L	2.0	U
EOS-SW05-031422	SW8260B	Xylenes, Total	ND		0.3		4 µg/L	4.0	U
EOS-SW05-031422	SW8270C	1,2,4-Trichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	1,2-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	1,2-Diphenylhydrazine	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	1,3-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	1,4-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2,2'-oxybis(1-Chloropropane)	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2,4,5-Trichlorophenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2,4,6-Trichlorophenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2,4-Dichlorophenol	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2,4-Dimethylphenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2,4-Dinitrophenol	ND		0.002		0.02 mg/L	0.020	U
EOS-SW05-031422	SW8270C	2,4-Dinitrotoluene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2,6-Dinitrotoluene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2-Chloronaphthalene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2-Chlorophenol	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2-Methoxy-4-methylphenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2-Methylnaphthalene	ND		0.003		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	2-Nitroaniline	ND		0.002		0.04 mg/L	0.040	U
EOS-SW05-031422	SW8270C	2-Nitrophenol	ND		0.001		0.02 mg/L	0.020	U
EOS-SW05-031422	SW8270C	3,3'-Dichlorobenzidine	ND		0.003		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	3-Nitroaniline	ND		0.002		0.04 mg/L	0.040	U
EOS-SW05-031422	SW8270C	4,6-Dinitro-2-methylphenol	ND		0.002		0.02 mg/L	0.020	U
EOS-SW05-031422	SW8270C	4-Bromophenyl phenyl ether	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	4-Chloro-3-methylphenol	ND		0.001		0.02 mg/L	0.020	U
EOS-SW05-031422	SW8270C	4-Chloroaniline	ND		0.004		0.02 mg/L	0.020	U
EOS-SW05-031422	SW8270C	4-Chlorophenyl phenyl ether	ND		0.001		0.01 mg/L	0.010	U
EOS-SW05-031422	SW8270C	4-Nitroaniline	ND		0.002		0.02 mg/L	0.020	U
EOS-SW05-031422	SW8270C	4-Nitrophenol	ND		0.003		0.02 mg/L	0.020	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW05-031422	SW8270C	Acenaphthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Acenaphthylene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Aniline	ND		0.004	0.02	mg/L	0.020	U
EOS-SW05-031422	SW8270C	Anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Azobenzene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Benzidine	ND		0.007	0.04	mg/L	0.040	U
EOS-SW05-031422	SW8270C	Benzo(a)anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Benzo(a)pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Benzo(b)fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Benzo(g,h,i)perylene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Benzo(k)fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Benzoic acid	ND		0.026	0.05	mg/L	0.050	U
EOS-SW05-031422	SW8270C	Benzyl alcohol	ND		0.003	0.02	mg/L	0.020	U
EOS-SW05-031422	SW8270C	Bis(2-chloroethoxy)methane	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Bis(2-chloroethyl)ether	ND		0.002	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Bis(2-ethylhexyl)phthalate	ND		0.002	0.006	mg/L	0.006	U
EOS-SW05-031422	SW8270C	Butyl benzyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Carbazole	ND		0.001	0.02	mg/L	0.020	U
EOS-SW05-031422	SW8270C	Chrysene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Dibenzo(a,h)anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Dibenzofuran	ND		0.002	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Diethyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Dimethyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Di-n-butyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Di-n-octyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Fluorene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Hexachlorobenzene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Hexachlorobutadiene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Hexachlorocyclopentadiene	ND		0.007	0.02	mg/L	0.020	U
EOS-SW05-031422	SW8270C	Hexachloroethane	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Indeno(1,2,3-cd)pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Isophorone	ND		0.001	0.01	mg/L	0.010	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW05-031422	SW8270C	m,p-Cresol	ND		0.002	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Naphthalene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Nitrobenzene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	N-Nitrosodimethylamine	ND		0.003	0.02	mg/L	0.020	U
EOS-SW05-031422	SW8270C	N-Nitroso-di-n-propylamine	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	N-Nitrosodiphenylamine	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	o-Cresol	ND		0.002	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Pentachlorophenol	ND		0.007	0.02	mg/L	0.020	U
EOS-SW05-031422	SW8270C	Phenanthrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Phenol	ND		0.002	0.005	mg/L	0.005	U
EOS-SW05-031422	SW8270C	Pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW05-031422	SW8270C	Pyridine	ND		0.003	0.02	mg/L	0.020	U
EOS-SW05-031422	SW8270C	Quinoline	ND		0.002	0.005	mg/L	0.005	U
EOS-SW05-031422	SW8270C	TPH-DRO (C10 - C21)	ND		0.255	0.3	mg/L	0.300	U
EOS-SW05-031422	SW8270C	TPH-ORO (C21 - C35)	ND		0.255	0.3	mg/L	0.300	UJ
EOS-SW07-031422	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,1,1-Trichloroethane	ND		0.3	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5	µg/L	5.0	U
EOS-SW07-031422	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.5	µg/L	0.5	U
EOS-SW07-031422	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30	µg/L	30.0	U
EOS-SW07-031422	SW8260B	1,1-Dichloroethane	ND		0.4	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,1-Dichloroethene	ND		0.4	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,1-Dichloropropene	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,2,3-Trichloropropane	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,2-Dibromoethane	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,2-Dichlorobenzene	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,2-Dichloroethane	ND		0.1	2	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031422	SW8260B	1,2-Dichloroethene, Total	ND		0.2		4 µg/L	4.0	U
EOS-SW07-031422	SW8260B	1,2-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,3,5-Trimethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,3-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,3-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	1,3-Dichloropropene, Total	ND		0.2		4 µg/L	4.0	U
EOS-SW07-031422	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4		4 µg/L	4.0	U
EOS-SW07-031422	SW8260B	1,4-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	1-Chlorobutane	ND		0.1		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	2,2-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	2-Butanone	ND		1.1		10 µg/L	10.0	U
EOS-SW07-031422	SW8260B	2-Chloroethyl vinyl ether	ND		0.4		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	2-Chlorotoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	2-Hexanone	ND		0.4		10 µg/L	10.0	U
EOS-SW07-031422	SW8260B	2-Nitropropane	ND		1.1		10 µg/L	10.0	U
EOS-SW07-031422	SW8260B	4-Chlorotoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	4-Methyl-2-pentanone	ND		0.4		10 µg/L	10.0	U
EOS-SW07-031422	SW8260B	Acetone	ND		2.4		10 µg/L	10.0	U
EOS-SW07-031422	SW8260B	Acetonitrile	ND		1.4		10 µg/L	10.0	U
EOS-SW07-031422	SW8260B	Acrolein	ND		4.4		20 µg/L	20.0	U
EOS-SW07-031422	SW8260B	Acrylonitrile	ND		0.2		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Allyl chloride	ND		0.2		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Benzene	ND		0.1		0.5 µg/L	0.5	U
EOS-SW07-031422	SW8260B	Bromobenzene	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Bromochloromethane	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Bromodichloromethane	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Bromoform	ND		0.8		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Bromomethane	ND		1		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Carbon disulfide	ND		0.7		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Carbon tetrachloride	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Chlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Chloroethane	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Chloroform	ND		0.2		2 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031422	SW8260B	Chloromethane	ND		0.2		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Chloroprene	ND		0.1		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	cis-1,2-Dichloroethene	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	cis-1,3-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Cyclohexanone	ND		16		20 µg/L	20.0	U
EOS-SW07-031422	SW8260B	Dibromochloromethane	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Dibromomethane	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Dichlorodifluoromethane	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Diisopropyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Ethyl acetate	ND		2.6		10 µg/L	10.0	U
EOS-SW07-031422	SW8260B	Ethyl ether	ND		0.2		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Ethyl methacrylate	ND		0.3		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Ethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Ethyl-tert-butyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Hexachlorobutadiene	ND		0.3		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Hexachloroethane	ND		0.1		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Iodomethane	ND		2.6		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Isopropylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	m,p-Xylenes	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Methacrylonitrile	ND		0.5		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Methyl Methacrylate	ND		0.2		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Methyl tert-butyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Methylacrylate	ND		0.2		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Methylene chloride	ND		0.9		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Naphthalene	ND		0.3		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	n-Butyl acetate	ND		0.3		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	n-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	n-Heptane	ND		0.2		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	n-Hexane	ND		0.6		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Nitrobenzene	ND		10		50 µg/L	50.0	U
EOS-SW07-031422	SW8260B	n-Propylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	o-Xylene	ND		0.1		2 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031422	SW8260B	Pentachloroethane	ND		0.4		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	p-Isopropyltoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Propionitrile	ND		0.9		10 µg/L	10.0	U
EOS-SW07-031422	SW8260B	sec-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Styrene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	tert-Amyl methyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	tert-Butyl alcohol	ND		1.5		10 µg/L	10.0	U
EOS-SW07-031422	SW8260B	tert-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Tetrachloroethene	ND		0.1		0.5 µg/L	0.5	U
EOS-SW07-031422	SW8260B	Tetrahydrofuran	ND		0.8		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Toluene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	TPH - GRO (C6 - C10)	ND		137		500 µg/L	500	U
EOS-SW07-031422	SW8260B	trans-1,2-Dichloroethene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	trans-1,3-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Trichloroethene	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Trichlorofluoromethane	ND		0.1		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Vinyl acetate	ND		0.3		5 µg/L	5.0	U
EOS-SW07-031422	SW8260B	Vinyl chloride	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422	SW8260B	Xylenes, Total	ND		0.3		4 µg/L	4.0	U
EOS-SW07-031422	SW8270C	1,2,4-Trichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422	SW8270C	1,2-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422	SW8270C	1,2-Diphenylhydrazine	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422	SW8270C	1,3-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422	SW8270C	1,4-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422	SW8270C	2,2'-oxybis(1-Chloropropane)	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422	SW8270C	2,4,5-Trichlorophenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW07-031422	SW8270C	2,4,6-Trichlorophenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW07-031422	SW8270C	2,4-Dichlorophenol	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422	SW8270C	2,4-Dimethylphenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW07-031422	SW8270C	2,4-Dinitrophenol	ND		0.002		0.02 mg/L	0.020	U
EOS-SW07-031422	SW8270C	2,4-Dinitrotoluene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422	SW8270C	2,6-Dinitrotoluene	ND		0.001		0.01 mg/L	0.010	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031422	SW8270C	2-Chloronaphthalene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	2-Chlorophenol	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	2-Methoxy-4-methylphenol	ND		0.002	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	2-Methylnaphthalene	ND		0.003	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	2-Nitroaniline	ND		0.002	0.04	mg/L	0.040	U
EOS-SW07-031422	SW8270C	2-Nitrophenol	ND		0.001	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	3,3'-Dichlorobenzidine	ND		0.003	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	3-Nitroaniline	ND		0.002	0.04	mg/L	0.040	U
EOS-SW07-031422	SW8270C	4,6-Dinitro-2-methylphenol	ND		0.002	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	4-Bromophenyl phenyl ether	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	4-Chloro-3-methylphenol	ND		0.001	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	4-Chloroaniline	ND		0.004	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	4-Chlorophenyl phenyl ether	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	4-Nitroaniline	ND		0.002	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	4-Nitrophenol	ND		0.003	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	Acenaphthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Acenaphthylene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Aniline	ND		0.004	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	Anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Azobenzene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Benzidine	ND		0.007	0.04	mg/L	0.040	U
EOS-SW07-031422	SW8270C	Benzo(a)anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Benzo(a)pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Benzo(b)fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Benzo(g,h,i)perylene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Benzo(k)fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Benzoic acid	ND		0.026	0.05	mg/L	0.050	U
EOS-SW07-031422	SW8270C	Benzyl alcohol	ND		0.003	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	Bis(2-chloroethoxy)methane	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Bis(2-chloroethyl)ether	ND		0.002	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Bis(2-ethylhexyl)phthalate	ND		0.002	0.006	mg/L	0.006	U
EOS-SW07-031422	SW8270C	Butyl benzyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Carbazole	ND		0.001	0.02	mg/L	0.020	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031422	SW8270C	Chrysene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Dibenzo(a,h)anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Dibenzofuran	ND		0.002	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Diethyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Dimethyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Di-n-butyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Di-n-octyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Fluorene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Hexachlorobenzene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Hexachlorobutadiene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Hexachlorocyclopentadiene	ND		0.007	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	Hexachloroethane	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Indeno(1,2,3-cd)pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Isophorone	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	m,p-Cresol	ND		0.002	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Naphthalene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Nitrobenzene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	N-Nitrosodimethylamine	ND		0.003	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	N-Nitroso-di-n-propylamine	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	N-Nitrosodiphenylamine	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	o-Cresol	ND		0.002	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Pentachlorophenol	ND		0.007	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	Phenanthrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Phenol	ND		0.002	0.005	mg/L	0.005	U
EOS-SW07-031422	SW8270C	Pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422	SW8270C	Pyridine	ND		0.003	0.02	mg/L	0.020	U
EOS-SW07-031422	SW8270C	Quinoline	ND		0.002	0.005	mg/L	0.005	U
EOS-SW07-031422	SW8270C	TPH-DRO (C10 - C21)	ND		0.255	0.3	mg/L	0.300	U
EOS-SW07-031422	SW8270C	TPH-ORO (C21 - C35)	ND		0.255	0.3	mg/L	0.300	U
EOS-SW07-031422-D	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,1,1-Trichloroethane	ND		0.3	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031422-D	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	1,1,2-Trichloroethane	ND		0.1		0.5 µg/L	0.5	U
EOS-SW07-031422-D	SW8260B	1,1-Dichloro-2-propanone	ND		2.7		30 µg/L	30.0	U
EOS-SW07-031422-D	SW8260B	1,1-Dichloroethane	ND		0.4		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,1-Dichloroethene	ND		0.4		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,1-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,2,3-Trichlorobenzene	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,2,3-Trichloropropane	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,2,3-Trimethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,2,4-Trichlorobenzene	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,2,4-Trimethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,2-Dibromoethane	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,2-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,2-Dichloroethane	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,2-Dichloroethene, Total	ND		0.2		4 µg/L	4.0	U
EOS-SW07-031422-D	SW8260B	1,2-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,3,5-Trimethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,3-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,3-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1,3-Dichloropropene, Total	ND		0.2		4 µg/L	4.0	U
EOS-SW07-031422-D	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4		4 µg/L	4.0	U
EOS-SW07-031422-D	SW8260B	1,4-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	1-Chlorobutane	ND		0.1		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	2,2-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	2-Butanone	ND		1.1		10 µg/L	10.0	U
EOS-SW07-031422-D	SW8260B	2-Chloroethyl vinyl ether	ND		0.4		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	2-Chlorotoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	2-Hexanone	ND		0.4		10 µg/L	10.0	U
EOS-SW07-031422-D	SW8260B	2-Nitropropane	ND		1.1		10 µg/L	10.0	U
EOS-SW07-031422-D	SW8260B	4-Chlorotoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	4-Methyl-2-pentanone	ND		0.4		10 µg/L	10.0	U
EOS-SW07-031422-D	SW8260B	Acetone	ND		2.4		10 µg/L	10.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031422-D	SW8260B	Acetonitrile	ND		1.4	10	µg/L	10.0	U
EOS-SW07-031422-D	SW8260B	Acrolein	ND		4.4	20	µg/L	20.0	U
EOS-SW07-031422-D	SW8260B	Acrylonitrile	ND		0.2	5	µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Allyl chloride	ND		0.2	5	µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Benzene	ND		0.1	0.5	µg/L	0.5	U
EOS-SW07-031422-D	SW8260B	Bromobenzene	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Bromochloromethane	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Bromodichloromethane	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Bromoform	ND		0.8	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Bromomethane	ND		1	5	µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Carbon disulfide	ND		0.7	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Carbon tetrachloride	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Chlorobenzene	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Chloroethane	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Chloroform	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Chloromethane	ND		0.2	5	µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Chloroprene	ND		0.1	5	µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	cis-1,2-Dichloroethene	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	cis-1,3-Dichloropropene	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Cyclohexanone	ND		16	20	µg/L	20.0	U
EOS-SW07-031422-D	SW8260B	Dibromochloromethane	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Dibromomethane	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Dichlorodifluoromethane	ND		0.2	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Diisopropyl ether	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Ethyl acetate	ND		2.6	10	µg/L	10.0	U
EOS-SW07-031422-D	SW8260B	Ethyl ether	ND		0.2	5	µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Ethyl methacrylate	ND		0.3	5	µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Ethylbenzene	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Ethyl-tert-butyl ether	ND		0.1	2	µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Hexachlorobutadiene	ND		0.3	5	µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Hexachloroethane	ND		0.1	5	µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Iodomethane	ND		2.6	5	µg/L	5.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031422-D	SW8260B	Isopropylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	m,p-Xylenes	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Methacrylonitrile	ND		0.5		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Methyl Methacrylate	ND		0.2		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Methyl tert-butyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Methylacrylate	ND		0.2		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Methylene chloride	ND		0.9		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Naphthalene	ND		0.3		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	n-Butyl acetate	ND		0.3		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	n-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	n-Heptane	ND		0.2		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	n-Hexane	ND		0.6		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Nitrobenzene	ND		10		50 µg/L	50.0	U
EOS-SW07-031422-D	SW8260B	n-Propylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	o-Xylene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Pentachloroethane	ND		0.4		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	p-Isopropyltoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Propionitrile	ND		0.9		10 µg/L	10.0	U
EOS-SW07-031422-D	SW8260B	sec-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Styrene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	tert-Amyl methyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	tert-Butyl alcohol	ND		1.5		10 µg/L	10.0	U
EOS-SW07-031422-D	SW8260B	tert-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Tetrachloroethene	ND		0.1		0.5 µg/L	0.5	U
EOS-SW07-031422-D	SW8260B	Tetrahydrofuran	ND		0.8		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Toluene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	TPH - GRO (C6 - C10)	ND		137		500 µg/L	500	U
EOS-SW07-031422-D	SW8260B	trans-1,2-Dichloroethene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	trans-1,3-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Trichloroethene	ND		0.2		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Trichlorofluoromethane	ND		0.1		5 µg/L	5.0	U
EOS-SW07-031422-D	SW8260B	Vinyl acetate	ND		0.3		5 µg/L	5.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031422-D	SW8260B	Vinyl chloride	ND		0.1		2 µg/L	2.0	U
EOS-SW07-031422-D	SW8260B	Xylenes, Total	ND		0.3		4 µg/L	4.0	U
EOS-SW07-031422-D	SW8270C	1,2,4-Trichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	1,2-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	1,2-Diphenylhydrazine	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	1,3-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	1,4-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2,2'-oxybis(1-Chloropropane)	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2,4,5-Trichlorophenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2,4,6-Trichlorophenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2,4-Dichlorophenol	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2,4-Dimethylphenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2,4-Dinitrophenol	ND		0.002		0.02 mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	2,4-Dinitrotoluene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2,6-Dinitrotoluene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2-Chloronaphthalene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2-Chlorophenol	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2-Methoxy-4-methylphenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2-Methylnaphthalene	ND		0.003		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	2-Nitroaniline	ND		0.002		0.04 mg/L	0.040	U
EOS-SW07-031422-D	SW8270C	2-Nitrophenol	ND		0.001		0.02 mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	3,3'-Dichlorobenzidine	ND		0.003		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	3-Nitroaniline	ND		0.002		0.04 mg/L	0.040	U
EOS-SW07-031422-D	SW8270C	4,6-Dinitro-2-methylphenol	ND		0.002		0.02 mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	4-Bromophenyl phenyl ether	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	4-Chloro-3-methylphenol	ND		0.001		0.02 mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	4-Chloroaniline	ND		0.004		0.02 mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	4-Chlorophenyl phenyl ether	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	4-Nitroaniline	ND		0.002		0.02 mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	4-Nitrophenol	ND		0.003		0.02 mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	Acenaphthene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Acenaphthylene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Aniline	ND		0.004		0.02 mg/L	0.020	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031422-D	SW8270C	Anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Azobenzene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Benzidine	ND		0.007	0.04	mg/L	0.040	U
EOS-SW07-031422-D	SW8270C	Benzo(a)anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Benzo(a)pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Benzo(b)fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Benzo(g,h,i)perylene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Benzo(k)fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Benzoic acid	ND		0.026	0.05	mg/L	0.050	U
EOS-SW07-031422-D	SW8270C	Benzyl alcohol	ND		0.003	0.02	mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	Bis(2-chloroethoxy)methane	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Bis(2-chloroethyl)ether	ND		0.002	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Bis(2-ethylhexyl)phthalate	ND		0.002	0.006	mg/L	0.006	U
EOS-SW07-031422-D	SW8270C	Butyl benzyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Carbazole	ND		0.001	0.02	mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	Chrysene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Dibenzo(a,h)anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Dibenzofuran	ND		0.002	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Diethyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Dimethyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Di-n-butyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Di-n-octyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Fluorene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Hexachlorobenzene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Hexachlorobutadiene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Hexachlorocyclopentadiene	ND		0.007	0.02	mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	Hexachloroethane	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Indeno(1,2,3-cd)pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Isophorone	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	m,p-Cresol	ND		0.002	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Naphthalene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Nitrobenzene	ND		0.001	0.01	mg/L	0.010	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW07-031422-D	SW8270C	N-Nitrosodimethylamine	ND		0.003	0.02	mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	N-Nitroso-di-n-propylamine	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	N-Nitrosodiphenylamine	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	o-Cresol	ND		0.002	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Pentachlorophenol	ND		0.007	0.02	mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	Phenanthrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Phenol	ND		0.002	0.005	mg/L	0.005	U
EOS-SW07-031422-D	SW8270C	Pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW07-031422-D	SW8270C	Pyridine	ND		0.003	0.02	mg/L	0.020	U
EOS-SW07-031422-D	SW8270C	Quinoline	ND		0.002	0.005	mg/L	0.005	U
EOS-SW07-031422-D	SW8270C	TPH-DRO (C10 - C21)	ND		0.255	0.3	mg/L	0.300	U
EOS-SW07-031422-D	SW8270C	TPH-ORO (C21 - C35)	ND		0.255	0.3	mg/L	0.300	U
EOS-SW08-031422	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,1,1-Trichloroethane	ND		0.3	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5	µg/L	5.0	U
EOS-SW08-031422	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.5	µg/L	0.5	U
EOS-SW08-031422	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30	µg/L	30.0	U
EOS-SW08-031422	SW8260B	1,1-Dichloroethane	ND		0.4	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,1-Dichloroethene	ND		0.4	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,1-Dichloropropene	ND		0.1	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,2,3-Trichlorobenzene	ND		0.2	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,2,3-Trichloropropane	ND		0.2	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,2,3-Trimethylbenzene	ND		0.1	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,2,4-Trichlorobenzene	ND		0.2	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,2,4-Trimethylbenzene	ND		0.1	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,2-Dibromoethane	ND		0.1	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,2-Dichlorobenzene	ND		0.1	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,2-Dichloroethane	ND		0.1	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,2-Dichloroethene, Total	ND		0.2	4	µg/L	4.0	U
EOS-SW08-031422	SW8260B	1,2-Dichloropropane	ND		0.1	2	µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,3,5-Trimethylbenzene	ND		0.1	2	µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW08-031422	SW8260B	1,3-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,3-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	1,3-Dichloropropene, Total	ND		0.2		4 µg/L	4.0	U
EOS-SW08-031422	SW8260B	1,4-Dichloro-2-butene, Total	ND		0.4		4 µg/L	4.0	U
EOS-SW08-031422	SW8260B	1,4-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	1-Chlorobutane	ND		0.1		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	2,2-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	2-Butanone	ND		1.1		10 µg/L	10.0	U
EOS-SW08-031422	SW8260B	2-Chloroethyl vinyl ether	ND		0.4		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	2-Chlorotoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	2-Hexanone	ND		0.4		10 µg/L	10.0	U
EOS-SW08-031422	SW8260B	2-Nitropropane	ND		1.1		10 µg/L	10.0	U
EOS-SW08-031422	SW8260B	4-Chlorotoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	4-Methyl-2-pentanone	ND		0.4		10 µg/L	10.0	U
EOS-SW08-031422	SW8260B	Acetone	ND		2.4		10 µg/L	10.0	U
EOS-SW08-031422	SW8260B	Acetonitrile	ND		1.4		10 µg/L	10.0	U
EOS-SW08-031422	SW8260B	Acrolein	ND		4.4		20 µg/L	20.0	U
EOS-SW08-031422	SW8260B	Acrylonitrile	ND		0.2		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Allyl chloride	ND		0.2		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Benzene	ND		0.1		0.5 µg/L	0.5	U
EOS-SW08-031422	SW8260B	Bromobenzene	ND		0.2		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Bromochloromethane	ND		0.2		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Bromodichloromethane	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Bromoform	ND		0.8		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Bromomethane	ND		1		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Carbon disulfide	ND		0.7		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Carbon tetrachloride	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Chlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Chloroethane	ND		0.2		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Chloroform	ND		0.2		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Chloromethane	ND		0.2		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Chloroprene	ND		0.1		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	cis-1,2-Dichloroethene	ND		0.2		2 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW08-031422	SW8260B	cis-1,3-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Cyclohexanone	ND		16		20 µg/L	20.0	U
EOS-SW08-031422	SW8260B	Dibromochloromethane	ND		0.2		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Dibromomethane	ND		0.2		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Dichlorodifluoromethane	ND		0.2		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Diisopropyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Ethyl acetate	ND		2.6		10 µg/L	10.0	U
EOS-SW08-031422	SW8260B	Ethyl ether	ND		0.2		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Ethyl methacrylate	ND		0.3		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Ethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Ethyl-tert-butyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Hexachlorobutadiene	ND		0.3		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Hexachloroethane	ND		0.1		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Iodomethane	ND		2.6		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Isopropylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	m,p-Xylenes	ND		0.2		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Methacrylonitrile	ND		0.5		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Methyl Methacrylate	ND		0.2		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Methyl tert-butyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Methylacrylate	ND		0.2		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Methylene chloride	ND		0.9		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Naphthalene	ND		0.3		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	n-Butyl acetate	ND		0.3		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	n-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	n-Heptane	ND		0.2		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	n-Hexane	ND		0.6		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Nitrobenzene	ND		10		50 µg/L	50.0	U
EOS-SW08-031422	SW8260B	n-Propylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	o-Xylene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Pentachloroethane	ND		0.4		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	p-Isopropyltoluene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Propionitrile	ND		0.9		10 µg/L	10.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW08-031422	SW8260B	sec-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Styrene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	tert-Amyl methyl ether	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	tert-Butyl alcohol	ND		1.5		10 µg/L	10.0	U
EOS-SW08-031422	SW8260B	tert-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Tetrachloroethene	ND		0.1		0.5 µg/L	0.5	U
EOS-SW08-031422	SW8260B	Tetrahydrofuran	ND		0.8		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Toluene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	TPH - GRO (C6 - C10)	ND		137		500 µg/L	500	U
EOS-SW08-031422	SW8260B	trans-1,2-Dichloroethene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	trans-1,3-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Trichloroethene	ND		0.2		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Trichlorofluoromethane	ND		0.1		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Vinyl acetate	ND		0.3		5 µg/L	5.0	U
EOS-SW08-031422	SW8260B	Vinyl chloride	ND		0.1		2 µg/L	2.0	U
EOS-SW08-031422	SW8260B	Xylenes, Total	ND		0.3		4 µg/L	4.0	U
EOS-SW08-031422	SW8270C	1,2,4-Trichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	1,2-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	1,2-Diphenylhydrazine	ND		0.001		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	1,3-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	1,4-Dichlorobenzene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	2,2'-oxybis(1-Chloropropane)	ND		0.001		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	2,4,5-Trichlorophenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	2,4,6-Trichlorophenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	2,4-Dichlorophenol	ND		0.001		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	2,4-Dimethylphenol	ND		0.002		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	2,4-Dinitrophenol	ND		0.002		0.02 mg/L	0.020	U
EOS-SW08-031422	SW8270C	2,4-Dinitrotoluene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	2,6-Dinitrotoluene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	2-Chloronaphthalene	ND		0.001		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	2-Chlorophenol	ND		0.001		0.01 mg/L	0.010	U
EOS-SW08-031422	SW8270C	2-Methoxy-4-methylphenol	ND		0.002		0.01 mg/L	0.010	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW08-031422	SW8270C	2-Methylnaphthalene	ND		0.003	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	2-Nitroaniline	ND		0.002	0.04	mg/L	0.040	U
EOS-SW08-031422	SW8270C	2-Nitrophenol	ND		0.001	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	3,3'-Dichlorobenzidine	ND		0.003	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	3-Nitroaniline	ND		0.002	0.04	mg/L	0.040	U
EOS-SW08-031422	SW8270C	4,6-Dinitro-2-methylphenol	ND		0.002	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	4-Bromophenyl phenyl ether	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	4-Chloro-3-methylphenol	ND		0.001	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	4-Chloroaniline	ND		0.004	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	4-Chlorophenyl phenyl ether	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	4-Nitroaniline	ND		0.002	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	4-Nitrophenol	ND		0.003	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	Acenaphthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Acenaphthylene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Aniline	ND		0.004	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	Anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Azobenzene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Benzidine	ND		0.007	0.04	mg/L	0.040	U
EOS-SW08-031422	SW8270C	Benzo(a)anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Benzo(a)pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Benzo(b)fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Benzo(g,h,i)perylene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Benzo(k)fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Benzoic acid	ND		0.026	0.05	mg/L	0.050	U
EOS-SW08-031422	SW8270C	Benzyl alcohol	ND		0.003	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	Bis(2-chloroethoxy)methane	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Bis(2-chloroethyl)ether	ND		0.002	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Bis(2-ethylhexyl)phthalate	ND		0.002	0.006	mg/L	0.006	U
EOS-SW08-031422	SW8270C	Butyl benzyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Carbazole	ND		0.001	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	Chrysene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Dibenzo(a,h)anthracene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Dibenzofuran	ND		0.002	0.01	mg/L	0.010	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-SW08-031422	SW8270C	Diethyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Dimethyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Di-n-butyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Di-n-octyl phthalate	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Fluoranthene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Fluorene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Hexachlorobenzene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Hexachlorobutadiene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Hexachlorocyclopentadiene	ND		0.007	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	Hexachloroethane	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Indeno(1,2,3-cd)pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Isophorone	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	m,p-Cresol	ND		0.002	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Naphthalene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Nitrobenzene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	N-Nitrosodimethylamine	ND		0.003	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	N-Nitroso-di-n-propylamine	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	N-Nitrosodiphenylamine	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	o-Cresol	ND		0.002	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Pentachlorophenol	ND		0.007	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	Phenanthrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Phenol	ND		0.002	0.005	mg/L	0.005	U
EOS-SW08-031422	SW8270C	Pyrene	ND		0.001	0.01	mg/L	0.010	U
EOS-SW08-031422	SW8270C	Pyridine	ND		0.003	0.02	mg/L	0.020	U
EOS-SW08-031422	SW8270C	Quinoline	ND		0.002	0.005	mg/L	0.005	U
EOS-SW08-031422	SW8270C	TPH-DRO (C10 - C21)	ND		0.255	0.3	mg/L	0.300	U
EOS-SW08-031422	SW8270C	TPH-ORO (C21 - C35)	ND		0.255	0.3	mg/L	0.300	U
EOS-TB-04	SW8260B	1,1,1,2-Tetrachloroethane	ND		0.1	2	µg/L	2.0	U
EOS-TB-04	SW8260B	1,1,1-Trichloroethane	ND		0.1	2	µg/L	2.0	U
EOS-TB-04	SW8260B	1,1,2,2-Tetrachloroethane	ND		0.1	2	µg/L	2.0	U
EOS-TB-04	SW8260B	1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.4	5	µg/L	5.0	U
EOS-TB-04	SW8260B	1,1,2-Trichloroethane	ND		0.1	0.5	µg/L	0.5	U
EOS-TB-04	SW8260B	1,1-Dichloro-2-propanone	ND		2.7	30	µg/L	30.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-TB-04	SW8260B	1,1-Dichloroethane	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,1-Dichloroethene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,1-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,2,3-Trichlorobenzene	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,2,3-Trichloropropane	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,2,3-Trimethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,2,4-Trichlorobenzene	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,2,4-Trimethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,2-Dibromo-3-chloropropane	ND		0.3		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,2-Dibromoethane	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,2-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,2-Dichloroethane	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,2-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,3,5-Trimethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,3-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,3-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1,4-Dichlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	1-Chlorobutane	ND		0.1		5 µg/L	5.0	U
EOS-TB-04	SW8260B	2,2-Dichloropropane	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	2-Butanone	ND		0.4		10 µg/L	10.0	U
EOS-TB-04	SW8260B	2-Chloroethyl vinyl ether	ND		0.4		5 µg/L	5.0	U
EOS-TB-04	SW8260B	2-Chlorotoluene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	2-Hexanone	ND		0.4		10 µg/L	10.0	U
EOS-TB-04	SW8260B	2-Nitropropane	ND		1.1		10 µg/L	10.0	U
EOS-TB-04	SW8260B	4-Chlorotoluene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	4-Methyl-2-pentanone	ND		0.4		10 µg/L	10.0	U
EOS-TB-04	SW8260B	Acetone	ND		2.4		10 µg/L	10.0	U
EOS-TB-04	SW8260B	Acetonitrile	ND		1.4		10 µg/L	10.0	U
EOS-TB-04	SW8260B	Acrolein	ND		4.4		20 µg/L	20.0	U
EOS-TB-04	SW8260B	Acrylonitrile	ND		0.2		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Allyl chloride	ND		0.2		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Benzene	ND		0.1		0.5 µg/L	0.5	U
EOS-TB-04	SW8260B	Bromobenzene	ND		0.2		2 µg/L	2.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-TB-04	SW8260B	Bromochloromethane	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Bromodichloromethane	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Bromoform	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Bromomethane	ND		1		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Carbon disulfide	ND		0.7		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Carbon tetrachloride	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Chlorobenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Chloroethane	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Chloroform	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Chloromethane	ND		0.2		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Chloroprene	ND		0.1		5 µg/L	5.0	U
EOS-TB-04	SW8260B	cis-1,2-Dichloroethene	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	cis-1,3-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	cis-1,4-Dichloro-2-butene	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Cyclohexanone	ND		3.8		20 µg/L	20.0	U
EOS-TB-04	SW8260B	Dibromochloromethane	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Dibromomethane	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Dichlorodifluoromethane	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Ethyl acetate	ND		2.6		10 µg/L	10.0	U
EOS-TB-04	SW8260B	Ethyl ether	ND		0.2		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Ethyl methacrylate	ND		0.3		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Ethylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Hexachlorobutadiene	ND		0.3		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Hexachloroethane	ND		0.1		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Iodomethane	ND		2.6		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Isopropylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	m,p-Xylenes	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Methacrylonitrile	ND		0.2		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Methyl Methacrylate	ND		0.2		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Methyl tert-butyl ether	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Methylacrylate	ND		0.2		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Methylene chloride	ND		0.9		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Naphthalene	ND		0.3		5 µg/L	5.0	U

MARATHON PIPELINE RELEASE E22505 SURFACE WATER ANALYTICAL RESULTS SUMMARY  
 TEKLAB REPORT NO. 22030941

Sample ID	Method	Analyte	Lab Result	Lab Qual	MDL	RL	Units	Val Result	Val Qual
EOS-TB-04	SW8260B	n-Butyl acetate	ND		0.3		2 µg/L	2.0	U
EOS-TB-04	SW8260B	n-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	n-Heptane	ND		0.2		5 µg/L	5.0	U
EOS-TB-04	SW8260B	n-Hexane	ND		1.4		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Nitrobenzene	ND		10		50 µg/L	50.0	U
EOS-TB-04	SW8260B	n-Propylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	o-Xylene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Pentachloroethane	ND		0.4		5 µg/L	5.0	U
EOS-TB-04	SW8260B	p-Isopropyltoluene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Propionitrile	ND		0.9		10 µg/L	10.0	U
EOS-TB-04	SW8260B	sec-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Styrene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	tert-Butylbenzene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Tetrachloroethene	ND		0.1		0.5 µg/L	0.5	U
EOS-TB-04	SW8260B	Tetrahydrofuran	ND		0.8		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Toluene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	trans-1,2-Dichloroethene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	trans-1,3-Dichloropropene	ND		0.1		2 µg/L	2.0	U
EOS-TB-04	SW8260B	trans-1,4-Dichloro-2-butene	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Trichloroethene	ND		0.2		2 µg/L	2.0	U
EOS-TB-04	SW8260B	Trichlorofluoromethane	ND		0.1		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Vinyl acetate	ND		0.3		5 µg/L	5.0	U
EOS-TB-04	SW8260B	Vinyl chloride	ND		0.1		2 µg/L	2.0	U

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

Data Package Number: 22030941

Method: 8260B

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
Initial Calibration	Confirm (in raw data) that an initial calibration begins each analytical sequence, before all QC or env. samples are analyzed, using the correct number of standards (and calibration blank, if required).	Ical 3/7/2022, Inst. GCMS\1	See Ical recalculation sheet below
	Confirm (in raw data) that an initial calibration occurs at the required frequency.	Ical 3/7/2022, Inst. GCMS\1	CCV was within associated Ical/ICV limits, and all samples within 12-hours of CCV.
	Confirm that initial calibration criteria are met. Spot-recalculate initial calibration results.	L4 Page 1573 ICAL-AK220307A-5.0 3/7/2022, GCMS\1, chloroethane	Reported RRF: 0.199 $(14277 * 50 \text{ ug/l}) / (71771 * 5.0 \text{ ug/l}) = 0.199$
		L4 Page 1515, VOCAK2204.M 3/7/2022, GCMS\1, chloroethane	Reported RRF: 0.226 $(0.285 + 0.256 + 0.229 + 0.212 + 0.199 + 0.221 + 0.213 + 0.208 + 0.218 + 0.223 + 0.221) / 11 = 0.226$
	L4 Page 1515, VOCAK2204.M 3/7/2022, GCMS\1, chloroethane	Reported %RSD = 10.72 $(0.0244 / 0.226) * 100 = 10.79$	
Recalculate at least one result (and %R or %D values, as appropriate) from each of the following QC samples and environmental samples, and compare your calculated results with the results			
<b>SHOW ALL WORK FOR RECALCULATIONS</b>			
Tune	Confirm DFTPP Percent Relative Abundance	L4 Pg. 811, Sample TUNE-AE220315A-1, 3/15/2022 at 06:18	m/z 96 = 6.7% $(7264 / 108347) * 100 = 6.7\%$
ICV	Check result	L4 Pg. 1611, Sample ICV-AK220307A-1, 3/7/2022 at 17:07	Acetone Conc. = 128.69 ug/l $((((240546 / 876351) - 0.006744) / 0.1033) * 50 \text{ ug/l}) = 129.6 \text{ ug/l}$
	Recalculate one RRF	NA	Linear Weigther Regression used - RFs not applicable
	Recalculate one %D	L4 Pg. 1608, Sample ICV-AK220307A-1, 3/7/2022 at 17:07	Acetone %R = 103% $(128.69 \text{ ug/l} / 125 \text{ ug/l}) * 100 = 103\%$
A CCV applicable to our samples	Check result	L4 Pg. 901, Sample CCV-AK220315A-1, 3/15/2022 at 08:48	Chloroethane Conc. = 45.20 ug/l $(198922 * 50 \text{ ug}) / (973802 * 0.226) = 45.19 \text{ ug/l}$
	Recalculate one RRF	L4 Pg. 897, Sample CCV-AK220315A-1, 3/15/2022 at 08:48	Chloroethane CCRF = 0.204 $(198922 * 50 \text{ ug}) / (973802 * 50 \text{ ug}) = 0.204$
	Recalculate one %D	L4 Pg. 897, Sample CCV-AK220315A-1, 3/15/2022 at 08:48	Chloroethane %D = 9.7% $(\text{abs}(0.226 - 0.204) / 0.226) * 100 = 9.7\%$
Method Blank	Check result	NA - No detects	
Surrogate	Recalculate one %R	L4 Pg. 929, Sample : 22030941-001B 3/15/2022 at 11:09	toluene-d8 %R = 100.24% $(50.12 \text{ ug/l} / 50 \text{ ug/l}) * 100 = 100.24\%$

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

Data Package Number: 22030941

Method: 8260B

MS	Check result	L4 Pg. 1003, Sample : 22030941-004CMS 3/15/2022 at 12:42	Chlorobenzene = 48.00 ug/l (848394*50 ug/l)/(740124*1.194) = 48.00 ug/l
	Recalculate one %R	Summary Report Pg. 53, SampID: 22030941-004CMS	Chlorobenzene %R = 96.0% (48 ug/l/50 ug/l)*100 = 96.0%
MSD	Check result	L4 Pg. 1023, Sample : 22030941-004CMSD 3/15/2022 at 13:06	Chlorobenzene = 50.76 ug/l (879840*50 ug/l)/(725819*1.194) = 50.76 ug/l
	Recalculate one %R	Summary Report Pg. 54, SampID: 22030941-004CMSD	Chlorobenzene %R = 101.5% (50.76 ug/l/50 ug/l)*100 = 101.5%
	Recalculate one RPD value between MS and MSD	Summary Report Pg. 54, SampID: 22030941-004CMSD	Chlorobenzene %RPD = 5.59% abs(50.76 ug/l-48 ug/l)/((50.76 ug/l+48 ug/l)/2)*100 = 5.59%
LCS	Check result	L4 Pg. 852, Sample : LCS-AK220315A-1 3/15/2022 at 07:05	Acetone Conc. = 130.16 ug/l (((266728/961047)-0.006744)/0.1033)*50 ug/l = 131.07 ug/l
	Recalculate one %R	Summary Report Pg. 47, SampID: LCS-AK220315A-1	Acetone %R = 104.1% (130.16 ug/l/125 ug/l)*100 = 104.1%
LCSD	Check result	L4 Pg. 875, Sample : LCSD-AK220315A-1 3/15/2022 at 07:28	Acetone Conc. = 121.29 ug/l (((255393/985749)-0.006744)/0.1033)*50 ug/l = 122.13 ug/l
	Recalculate one %R	Summary Report Pg. 50, SampID: LCSD-AK220315A-1	Acetone %R = 97% (121.29 ug/l/125 ug/l)*100 = 97%
	Recalculate one RPD value between LCS and LCSD	Summary Report Pg. 50, SampID: LCSD-AK220315A-1	Acetone %RPD = 7.06% abs(121.29 ug/l-130.16 ug/l)/((121.29 ug/l+130.16 ug/l)/2)*100 = 7.06%
Internal Standards	Recalculate one %R	NA - %Rs were not provided	IS recoveries were evaluated and were within acceptable limits.
	Recalculate one delta RT	NA - %Rs were not provided	IS RTs were evaluated and were within acceptable limits.
Sample Result for EOS-SW05-031222	Check result	L4 Pg. 929, Sample : 22030941-001C 3/15/2022 at 11:09	Acetone Conc. = 2.76 ug/l (((12201/977524)-0.006744)/0.1033)*50 ug/l = 2.77 ug/l (<RL = ND)
MDL for _____	Check result	NA - MDLs no change for aqueous undiluted samples	
RL for _____	Check result	NA - RLs no change for aqueous undiluted samples	
Convert µg/m <sup>3</sup> to ppbV (air only) for _____	Check result	NA	

Formulas:

\* Conc. (mg/kg) = {(Raw Conc. in ug/L) x (Vol. in L) x DF} / {(Sample mass in kg) x (fractional solids) x (1000)}

\*\* Serial dilution conc. (ug/L) = (Raw Conc. in ug/L) x (DF, typically 5)

\*\*\* %R = [(Measured Value) / (True Value)] x 100

\*\*\*\* %R = {(Spike sample result) - (Sample result)} / (Spike added) x 100

RPD = [(A-B) / {(A + B)/2}] x 100

Percent difference = [(Original Result - Diluted Result) / Original Result] x 100

**22030941**

Initial Calibration

VOC

GC-MS\1

chloroethane

pg. 1515

Concentration (ug/L)

Rf

0.2	0.5	1.0	2.0	5.0	10.0	20.0	50.0	100.0	150.0	200.0
0.285	0.256	0.229	0.212	0.199	0.221	0.213	0.208	0.218	0.223	0.221

Std Dev

0.0244

Mean Rf

0.226



%RSD

10.78



Concentration 5 (ug/L) Rf Check

chloroethane area = 14277, 5.0 ug/L pg. 1573

Fluorobenzene (internal standard) area = 717717, 50.0 ug/L

$$\frac{14277}{717717} \times \frac{50.0 \text{ ug/L}}{5.0 \text{ ug/L}} = 0.199 \quad \checkmark$$

Concentration 50 (ug/L) Rf Check

chloroethane area = 158168, 5.0 ug/L pg. 1585

Fluorobenzene (internal standard) area = 759061, 50.0 ug/L

$$\frac{158168}{759061} \times \frac{50.0 \text{ ug/L}}{50.0 \text{ ug/L}} = 0.208 \quad \checkmark$$

**Report No: 22030941**

VOC by 8260B - Initial Calibration

1/3/2022

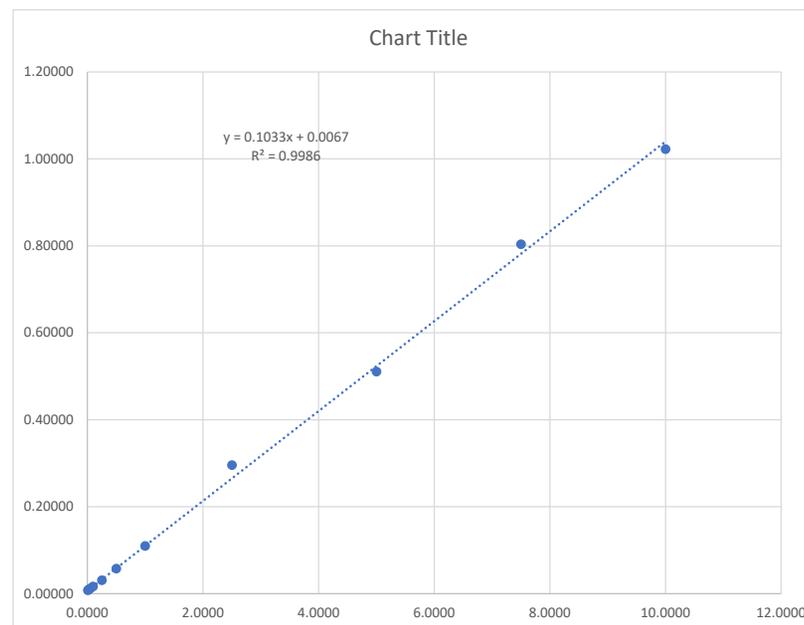
Instrument GCMS\1

ACETONE

Weighted Linear Regression (1/A)

Page(s): 1520-1600

C(ug/L) <sub>x</sub>	C(ug/L) <sub>IS</sub>	Conc. Ratio (C <sub>x</sub> /C <sub>IS</sub> )	A <sub>x</sub>	A <sub>IS</sub>	Resp. Ratio (A <sub>x</sub> /A <sub>IS</sub> )
0.5	50	0.0100	5506	707059	0.00779
1.25	50	0.0250	6906	716214	0.00964
2.5	50	0.0500	8400	708394	0.01186
5	50	0.1000	11805	720199	0.01639
12.5	50	0.2500	22225	717717	0.03097
25	50	0.5000	41682	726640	0.05736
50	50	1.0000	81277	740328	0.10979
125	50	2.5000	224372	759061	0.29559
250	50	5.0000	409885	802465	0.51078
375	50	7.5000	675188	840099	0.80370
500	50	10.0000	916447	896474	1.02228



Slope: 0.1033  
 Intercept: 0.0067  
 r: 0.99930  
 r<sup>2</sup>: 0.99860

\*(X) = target analyte

\*(IS) = internal standard

$$\text{Conc.} = (((\text{Target Area}/\text{IS Area}) - \text{intercept}) / \text{slope}) * \text{IS Conc.}$$

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030941**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
Initial Calibration	Confirm (in raw data) that an initial calibration begins each analytical sequence, before all QC or env. samples are analyzed, using the correct number of standards (and calibration blank, if required).	Ical 3/2/2022, Inst. AB	See Ical RSD/RF recalculations attached
	Confirm (in raw data) that an initial calibration occurs at the required frequency.	Ical 3/2/2022, Inst. AB	CCV was within associated Ical/ICV limits, and all samples within 12-hours of CCV.
	Confirm that initial calibration criteria are met. Spot-recalculate initial calibration results.	L4 Page 200-334, Ical 3/2/2022, Inst. AB, phenol	Reported RRF: 1.687 $(87348 * 40 \text{ ug/ml}) / (414337 * 5.0 \text{ ug/ml}) = 1.687$
		L4 Page 200-334, Ical 3/2/2022, Inst. AB, phenol	Reported ave RF: 1.686 $(1.857 + 1.752 + 1.687 + 1.51 + 1.719 + 1.694 + 1.636 + 1.635) / 8 = 1.686$
		L4 Page 200-334, Ical 3/2/2022, Inst. AB, phenol	Reported %RSD = 5.96 $(0.1006 / 1.686) * 100 = 5.96$

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030941**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
<p>Recalculate at least one result (and %R or %D values, as appropriate) from each of the following QC samples and environmental samples, and compare your calculated results with the results the laboratory reports on their summary forms found earlier in the data package. They should agree. If they do not, then there may be problems with the package and further review is required. Note that for some QC samples, your comparison may mean simply confirming that the result reported in the summary form matches the result in the raw data – there may not be any calculation.</p> <p align="right"><b>SHOW ALL WORK FOR RECALCULATIONS</b></p>			
Tune	Confirm DFTPP Percent Relative Abundance	L4 Pg. 10, Sample BNA220209D, 3/15/2022 at 08:54	m/z 199 = 6.6% (12693/193024)*100 = 6.6%
ICV	Check result	L4 Pg. 340, Sample BNA220210F, 3/2/2022 at 11:16	phenol Conc. = 20.19 ug/ml (445741*40 ug/ml)/(523832*1.686) = 20.19 ug/ml
	Recalculate one RRF	L4 Pg. 334, Sample BNA220210F, 3/2/2022 at 11:16	phenol CCRF = 1.702 (445741*40 ug/ml)/(523832*20 ug/ml) = 1.702
	Recalculate one %D	L4 Pg. 334, Sample BNA220210F, 3/2/2022 at 11:16	phenol %D = 0.9% (abs(1.702- 1.686 )/1.686 )*100 = 0.9%
A CCV applicable to our samples	Check result	L4 Pg. 19, Sample : BNA220311L 3/15/2022 at 09:43	phenol Conc. = 19.02 ug/ml (445514*40 ug/ml)/(555715*1.686) = 19.02 ug/ml
	Recalculate one RRF	L4 Pg. 13, Sample : BNA220311L 3/15/2022 at 09:43	phenol CCRF = 1.603 (445514*40 ug/ml)/(555715*20 ug/ml) = 1.603
	Recalculate one %D	L4 Pg. 13, Sample : BNA220311L 3/15/2022 at 09:43	phenol %D = 4.9% (abs(1.686-1.603)/1.686)*100 = 4.9%
Method Blank	Check result	NA - No detects above RL	
Surrogate	Recalculate one %R	L4 Pg. 78, Sample : 22030941-001A 3/15/2022 at 15:32	p-terphenyl-d14 %R = 161.92% (40.48 ug/ml/25 ug/ml)*100 = 161.92%
MS	Check result	NA	
	Recalculate one %R	NA	
MSD	Check result	NA	
	Recalculate one %R	NA	
	Recalculate one RPD value between MS and MSD	NA	

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030941**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
LCS	Check result	L4 Pg. 37, Sample : LCS-188596 3/15/2022 at 12:34	phenol Conc. = 26.45 ug/ml $(583843 * 40 \text{ ug/ml}) / (523701 * 1.686) = 26.45 \text{ ug/ml}$
	Recalculate one %R	Summary Report Pg. 39, SampleID: LCS-188596	phenol %R = 52.9% $(26.45 \text{ ug/ml} / 50 \text{ ug/ml}) * 100 = 52.9\%$
LCSD	Check result	L4 Pg. 42, Sample : LCSD-188596 3/15/2022 at 13:11	phenol Conc. = 27.73 ug/ml $(629078 * 40 \text{ ug/ml}) / (538299 * 1.686) = 27.73 \text{ ug/ml}$
	Recalculate one %R	Summary Report Pg. 42, SampleID: LCSD-188596	phenol %R = 55.5% $(27.73 \text{ ug/ml} / 50 \text{ ug/ml}) * 100 = 55.5\%$
	Recalculate one RPD value between LCS and LCSD	Summary Report Pg. 42, SampleID: LCSD-188596	phenol %RPD = 4.72% $(\text{abs}(26.45 \text{ mg/l} - 27.73 \text{ mg/l}) / ((26.45 \text{ mg/l} + 27.73 \text{ mg/l}) / 2)) * 100 = 4.72\% \text{ (rounding)}$
Internal Standards	Recalculate one %R	NA - %Rs were not provided	IS recoveries were evaluated and were within acceptable limits.
	Recalculate one delta RT	NA - %Rs were not provided	IS RTs were evaluated and were within acceptable limits.
Sample Result for EOS-SW01-031222	Check result	NA - No detects above the RL	
MDL for _____	Check result	NA - MDLs no change for aqueous undiluted samples	
RL for _____	Check result	NA - RLs no change for aqueous undiluted samples	
Convert $\mu\text{g}/\text{m}^3$ to ppbV (air only) for _____	Check result	NA	

Formulas:

\*  $\text{Conc. (mg/kg)} = \{(\text{Raw Conc. in ug/L}) \times (\text{Vol. in L}) \times \text{DF}\} / \{(\text{Sample mass in kg}) \times (\text{fractional solids}) \times (1000)\}$

\*\*  $\text{Serial dilution conc. (ug/L)} = (\text{Raw Conc. in ug/L}) \times (\text{DF, typically 5})$

\*\*\*  $\%R = [(\text{Measured Value}) / (\text{True Value})] \times 100$

\*\*\*\*  $\%R = \{(\text{Spike sample result}) - (\text{Sample result})\} / (\text{Spike added}) \times 100$

$\text{RPD} = [(A-B) / \{(A + B)/2\}] \times 100$

$\text{Percent difference} = [(\text{Original Result} - \text{Diluted Result}) / \text{Original Result}] \times 100$

**22030941**

Initial Calibration	SVOC		3/2/2022					
GC-MS\1 (Inst. AB)	phenol		pg. 200					
Concentration (ug/L)	0.1	1.0	5.0	10.0	20.0	50.0	80.0	100.0
Rf	1.857	1.752	1.687	1.510	1.719	1.694	1.636	1.635

Std Dev	0.1006	
Mean Rf	1.686	✓
%RSD	5.97	✓

## Concentration 5 (ug/L) Rf Check

phenol area = 87348, 5.0 ug/mL pg. 294

1,4-dichlorobenzene-d4 (internal standard) area = 414337, 40 ug/mL

$$\frac{87348}{414337} \times \frac{40.0 \text{ ug/mL}}{5.0 \text{ ug/mL}} = 1.687 \quad \checkmark$$

## Concentration 50 (ug/mL) Rf Check

phenol area = 965702, 50 ug/mL pg. 312

1,4-dichlorobenzene-d4 (internal standard) area = 456112, 40 ug/mL

$$\frac{965702}{456112} \times \frac{40 \text{ ug/mL}}{50 \text{ ug/mL}} = 1.694 \quad \checkmark$$

Report No: 22030941

SVOC by 8270B - Initial Calibration

3/2/2022

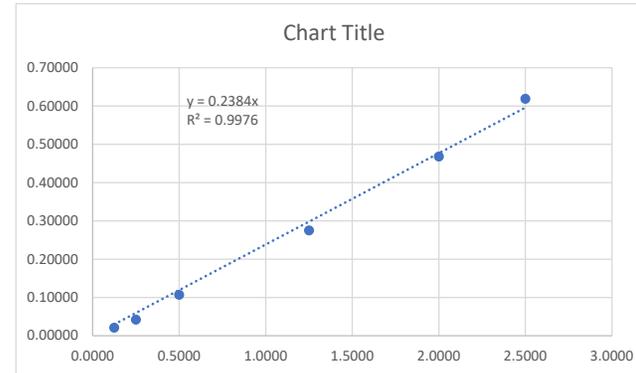
Instrument GCMS\1

Benzoic Acid

Weighted Linear Regression (1/A through 0,0)

Page(s): 215-

C(ug/mL) <sub>x</sub>	C(ug/mL) <sub>IS</sub>	Conc. Ratio (C <sub>x</sub> /C <sub>IS</sub> )	A <sub>x</sub>	A <sub>IS</sub>	Resp. Ratio (A <sub>x</sub> /A <sub>IS</sub> )
5	40	0.1250	33266	1569562	0.02119
10	40	0.2500	67429	1610921	0.04186
20	40	0.5000	183017	1708940	0.10709
50	40	1.2500	478848	1741647	0.27494
80	40	2.0000	839307	1792233	0.46830
100	40	2.5000	1133382	1831032	0.61899



Slope: 0.2384  
Intercept: through 0  
r: 0.99880  
r<sup>2</sup>: 0.99760

\*(X) = target analyte

\*(IS) = internal standard

Conc. = ((Target Area/IS Area)/slope)\*IS Conc.

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030941**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
Initial Calibration	Confirm (in raw data) that an initial calibration begins each analytical sequence, before all QC or env. samples are analyzed, using the correct number of standards (and calibration blank, if required).	Ical 1/3/2022, Inst. T	See Ical linear regression recalculation
	Confirm (in raw data) that an initial calibration occurs at the required frequency.	Ical 1/3/2022, Inst. T	CCV was within associated Ical/ICV limits, and all samples within 12-hours of CCV.
	Confirm that initial calibration criteria are met. Spot-recalculate initial calibration results.	L4 Page 730-790, 1/3/2022, Inst T, TPH-DRO	See attached TPH-DRO linear regression recalculation
		L4 Page 730-790, 1/3/2022, Inst T, TPH-DRO	See attached TPH-DRO linear regression recalculation
	L4 Page 730-790, 1/3/2022, Inst T, TPH-DRO	See attached TPH-DRO linear regression recalculation	

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030941**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
<p>Recalculate at least one result (and %R or %D values, as appropriate) from each of the following QC samples and environmental samples, and compare your calculated results with the results the laboratory reports on their summary forms found earlier in the data package. They should agree. If they do not, then there may be problems with the package and further review is required. Note that for some QC samples, your comparison may mean simply confirming that the result reported in the summary form matches the result in the raw data – there may not be any calculation.</p> <p align="right"><b>SHOW ALL WORK FOR RECALCULATIONS</b></p>			
Tune	Confirm DFTPP Percent Relative Abundance	L4 Pg. 558, Sample BNA210923C, 3/15/2022 at 11:09	m/z 199 = 6.9% $(17246/249173) * 100 = 6.9\%$
ICV	Check result	L4 Pg. 791, Sample BNA210819E, 1/4/2022 at 03:52	TPH-DRO Conc. = 1015.60 ug/ml $((107125607/1768489) - 5.199) / 2.181 * 40 \text{ ug/ml} = 1015.60 \text{ ug/ml}$
	Recalculate one RRF	NA	Linear Weigthed Regression used - RFs not applicable
	Recalculate one %D	L4 Pg. 790, Sample BNA210819E, 1/4/2022 at 03:52	TPH-DRO %D = 1.6% $(\text{abs}(1015.6 \text{ ug/ml} - 1000 \text{ ug/ml}) / 1000 \text{ ug/ml}) * 100 = 1.56\%$
A CCV applicable to our samples	Check result	L4 Pg. 566, Sample : BNA220124M 3/15/2022 at 12:28	TPH-DRO Conc. = 1004.26 ug/ml $((77350325/1290117) - 5.199) / 2.181 * 40 \text{ ug/ml} = 1004.26 \text{ ug/ml}$
	Recalculate one RRF	NA	Linear Weigther Regression used - RFs not applicable
	Recalculate one %D	L4 Pg. 565, Sample : BNA220124M 3/15/2022 at 12:28	TPH-DRO %D = 0.4% $(\text{abs}(1004.26 \text{ ug/ml} - 1000 \text{ ug/ml}) / 1000 \text{ ug/ml}) * 100 = 0.4\%$
Method Blank	Check result	L4 Pg. 570, Sample : MBLK-188596 3/15/2022 at 13:24	TPH-DRO = 146.88 ug/ml $((15748591/1192434) - 5.199) / 2.181 * 40 \text{ ug/ml} = 146.87 \text{ ug/ml} (< \text{RL} = \text{ND})$
Surrogate	Recalculate one %R	L4 Pg. 596, Sample : 22030941-001A 3/15/2022 at 18:47	p-terphenyl-d14 %R = 153.84% $(38.46 \text{ ug/ml} / 25 \text{ ug/ml}) * 100 = 153.84\%$
MS	Check result	L4 Pg. 604, Sample : 22030941-001AMS 3/15/2022 at 19:27	TPH-DRO Conc. = 1620.08 ug/ml $((129096813/1380208) - 5.199) / 2.181 * 40 \text{ ug/ml} = 1620.08 \text{ ug/ml}$
	Recalculate one %R	Summary Report Pg. 33, SampID: 22030941-001AMS	TPH-DRO %R = 67.9% $((1620.08 \text{ mg/l} - 261.4 \text{ mg/l}) / 2000 \text{ mg/l}) * 100 = 67.9\%$
MSD	Check result	L4 Pg. 608, Sample : 22030941-001AMSD 3/15/2022 at 20:07	TPH-DRO Conc. = 1642.13 ug/ml $((132111330/1394515) - 5.199) / 2.181 * 40 \text{ ug/ml} = 1642.13 \text{ ug/ml}$
	Recalculate one %R	Summary Report Pg. 33, SampID: 22030941-001AMSD	TPH-DRO %R = 69% $((1642.13 \text{ mg/l} - 261.4 \text{ mg/l}) / 2000 \text{ mg/l}) * 100 = 69\%$
	Recalculate one RPD value between MS and MSD	Summary Report Pg. 33, SampID: 22030941-001AMSD	TPH-DRO (C10-C21) %RPD = 1.35% $(\text{abs}(1620.08 \text{ mg/l} - 1642.13 \text{ mg/l}) / ((1620.08 \text{ mg/l} + 1642.13 \text{ mg/l}) / 2)) * 100 = 1.35\%$

**STAGE 3/4 DATA VALIDATION ORGANICS CHECKLIST FOR RECALCULATIONS**

**Data Package Number: 22030941**

**Method: 8270C**

Validation Element	Objective	Sample ID, Run Date, and Run Time	Results (include units) and Notes (Use check mark to indicate correct result; include hand-calculated result if performed)
LCS	Check result	L4 Pg. 590, Sample : LCSDRO-188596 3/15/2022 at 17:26	TPH-DRO Conc. = 818.23 ug/ml (((67215725/1349367)-5.199)/2.181)*40 ug/ml = 818.23 ug/ml
	Recalculate one %R	Summary Report Pg. 32, SampID: LCSDRO-188596	TPH-DRO (C10-C21) %R = 81.8% (0.818 mg/l/1.0 mg/l)*100 = 81.8%
LCSD	Check result	L4 Pg. 594, Sample : LCSDROD-188596 3/15/2022 at 18:07	TPH-DRO Conc. = 872.94 ug/ml (((71223107/1349023)-5.199)/2.181)*40 ug/ml = 872.94 ug/ml
	Recalculate one %R	Summary Report Pg. 32, SampID: LCSDROD-188596	TPH-DRO (C10-C21) %R = 87.3% (0.873 mg/l/1.0 mg/l)*100 = 87.3%
	Recalculate one RPD value between LCS and LCSD	Summary Report Pg. 32, SampID: LCSDROD-188596	TPH-DRO (C10-C21) %RPD = 6.47% (abs(0.818 mg/l-0.873 mg/l)/((0.873 mg/l+0.818 mg/l)/2))*100 = 6.5% (rounding)
Internal Standards	Recalculate one %R	NA - %Rs were not provided	IS recoveries were evaluated and were within acceptable limits.
	Recalculate one delta RT	NA - %Rs were not provided	IS RTs were evaluated and were within acceptable limits.
Sample Result for EOS-SW05-031222	Check result	L4 Pg. 596, Sample : 22030941-001A 3/15/2022 at 18:47	TPH-DRO Conc. = 261.39 ug/ml (((25939092/1333576)-5.199)/2.181)*40 ug/ml = 261.38 ug/ml (<RL = ND)
MDL for _____	Check result	NA - MDLs no change for aqueous undiluted samples	
RL for _____	Check result	NA - RLs no change for aqueous undiluted samples	
Convert µg/m <sup>3</sup> to ppbV (air only) for _____	Check result	NA	

Formulas:

\* Conc. (mg/kg) = {(Raw Conc. in ug/L) x (Vol. in L) x DF} / {(Sample mass in kg) x (fractional solids) x (1000)}

\*\* Serial dilution conc. (ug/L) = (Raw Conc. in ug/L) x (DF, typically 5)

\*\*\* %R = [(Measured Value) / (True Value)] x 100

\*\*\*\* %R = {(Spike sample result) - (Sample result)} / (Spike added) x 100

RPD = [(A-B) / {(A + B)/2}] x 100

Percent difference = [(Original Result - Diluted Result) / Original Result] x 100

Report No: 22030941

TPH-DRO by 8270C - Initial Calibration 1/3/2022

GC-MS Instrument T

TPH-DRO/ORO

Weighted Linear Regression (1/A)

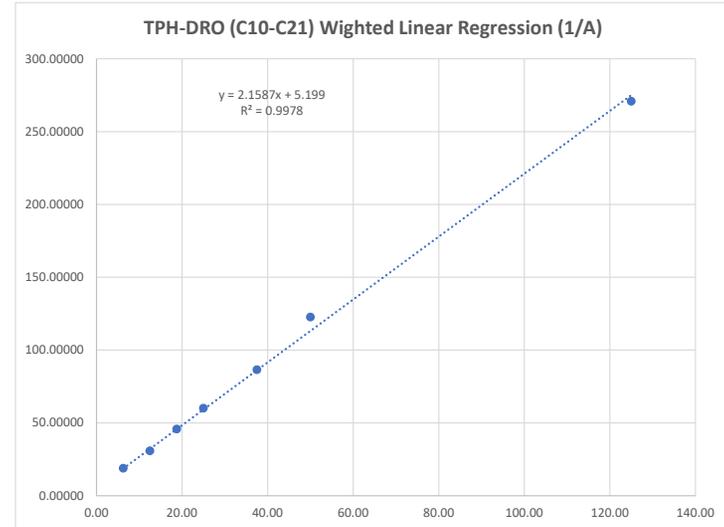
Page(s): 730-790

C(ug/mL) <sub>x</sub>	C(ug/mL) <sub>IS</sub>	Conc. Ratio (C <sub>x</sub> /C <sub>IS</sub> )	A <sub>x</sub>	A <sub>IS</sub>	Resp. Ratio (A <sub>x</sub> /A <sub>IS</sub> )
250	40	6.25	33121815	1752202	18.90297
500	40	12.50	53658608	1734782	30.93104
750	40	18.75	78340351	1708995	45.84001
1000	40	25.00	105572335	1753395	60.21024
1500	40	37.50	150847373	1740696	86.65923
2000	40	50.00	214742076	1750511	122.67394
5000	40	125.00	521756692	1925643	270.95193

Slope: 2.1600  
Intercept: 5.1990  
r: 0.99890  
r<sup>2</sup>: 0.99780

\*(X) = target analyte

\*(IS) = internal standard



Conc. = (((Target Area/IS Area)-intercept)/slope)\*IS Conc.